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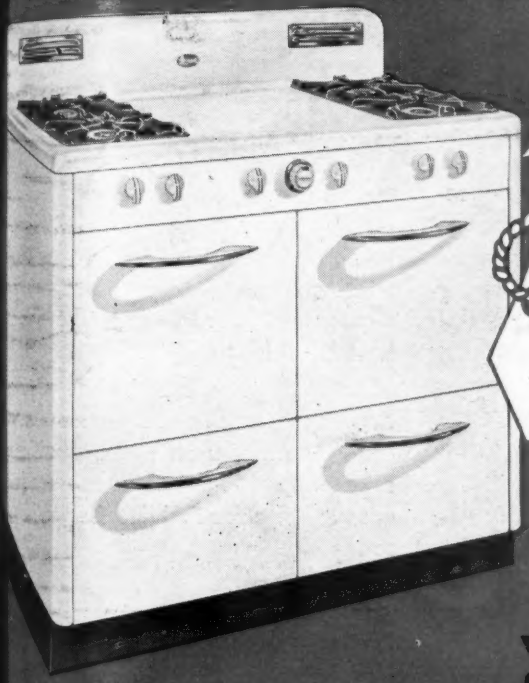

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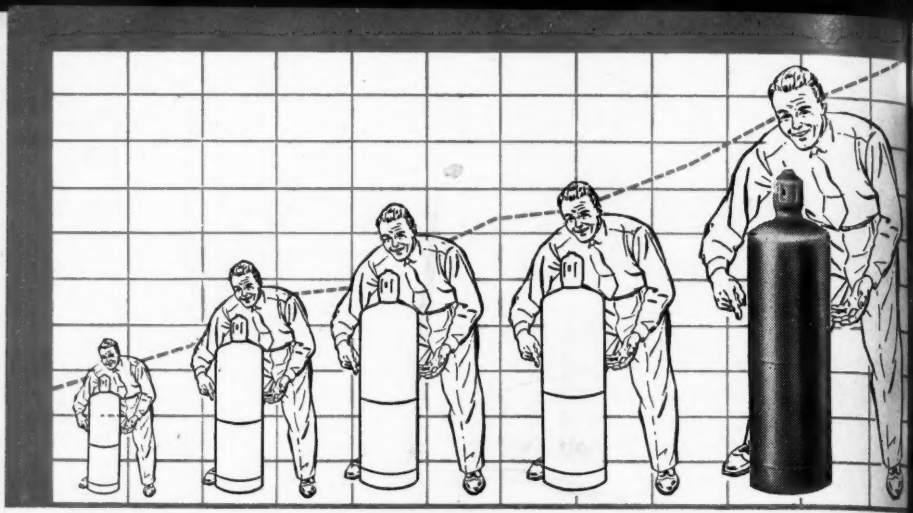
SEPTEMBER, 1945



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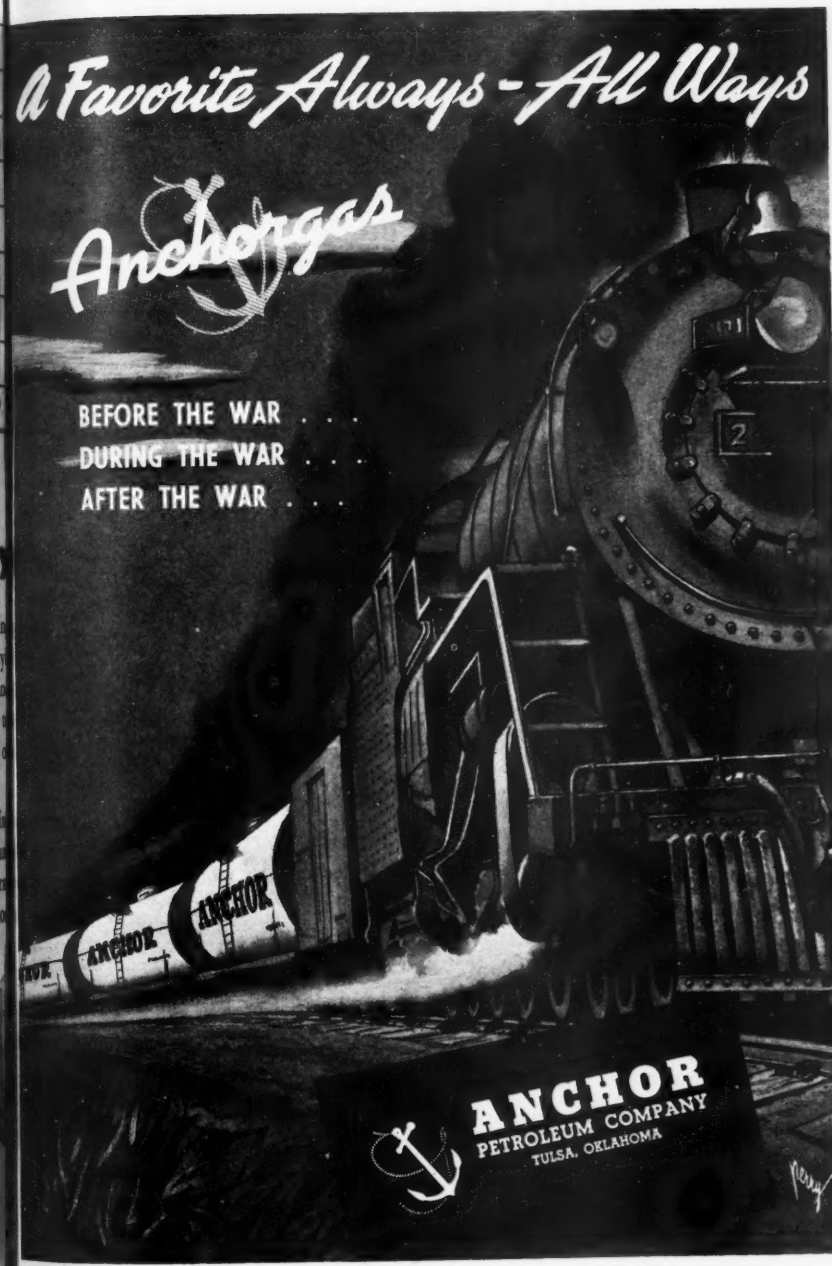
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BUTANE-PROPANE *News*

Reg. U. S. Pat. Off.

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LETTERS

• Have you service or operating problems? Submit them to us and our technical department will endeavor to help you.—Ed.

•

Gentlemen:

In connection with our operations we have need for marine channel marker lights, airport boundary lights, airport flood lights, and marine and airway beacon lights which can be operated on butane gas.

If you know of some establishment that makes any units of this nature or would be interested in designing and building this type of equipment, will you kindly advise us accordingly, and supply us with such descriptive literature and pertinent information as is presently available?

E. C. A.

California

So far as we know, this is an application of liquefied petroleum gas that has not been made to date, but we believe it to be thoroughly feasible.

Do any of our readers know of a firm manufacturing such equipment?—Ed.

•

Gentlemen:

In "The Bottled Gas Manual", see "Gradual Action Rod Type Thermostats."

In Fig. C explanation, you describe the action that closes valve, the expansion of the rod screwed in the block, which releases pressure on brass rod.

Now for what I would like to learn.

We here in the service department have some few of this type, or similar, used on water heaters. The action of the poppet valve, as far as I know, controls opening and closing of the bleed gas, traveling from top of diaphragm of main valve, or operating valve.

Say we want to raise temperature of water. We have pilot burning through its controls. When calling for heat, gas enters runner pilot which lights from pilot, and runner pilot then heats rod or end of same, and causes expansion which must open valve to allow bleeder gas to escape to its waste burner.

Now if the heat and expansion closes valve, what opens same? That is what I thought the heat was for. Please clear this up for me if possible.

G. B.

California

We feel that you have the action of the thermostat and the safety pilot shut-off confused.

The temperature of the water in the heater is controlled by a rod type thermostat that closes the valve when the water becomes hot enough, similar in action to the control explained in "The Bottled Gas Manual."

In addition, in order to prevent an escape of gas through the burner should the pilot go out, a bi-metal rod is placed in the pilot flame. When it heats, it opens the gas valve to the burner. This valve works in reverse manner to the water thermostat.—Ed.

•

Gentlemen:

Would appreciate your sending us the booklet containing the names and addresses of filling stations throughout the United States.

H. L. S.

Illinois

We are asking the Adel Precision Products Corp., Burbank, Calif., to mail you a copy of a butane-propane filling station directory which they are now publishing.—Ed.

•

Gentlemen:

I must let you know how enthusiastically Mr. Stanley Smith's articles are received in our office.

The information he provided in your June issue was fine, and the July issue was every bit as good. The

illustrations, explanations, and tables are excellent.

I wish every tank and pump designer in the country could read these important articles. It would certainly make it easier for the pump man, and would result in the ultimate user being better served.

The industry should certainly thank Mr. Smith for the time, interest and study that he has given this problem.

I hope you will continue several of his articles and especially his findings and actual tests on capacity through excess flow valves into pumps and flow through different strainer sizes and his formula for determining losses through strainers when handling B-P Gases.

CORKEN PUMP & MACHINERY CO.
By CHARLES CORKEN.

Oklahoma City, Oklahoma.

Praise of Mr. Smith's article on pumps by a pump authority emphasizes the value of this series to dealers everywhere.

The subjects above suggested either have been, or will be, covered in the "Pump Problems" series.—Ed.

•

Gentlemen:

We are interested to know what effect a pressure of 8 or 9 inches of water column has on a domestic installation, aside from lowered efficiency at the burner.

Does this insufficient pressure result in a lower consumption of gas, possibly due to lower heat from the flame—less heat escaping around the vessel at top speed?

We are of the belief that a medium "starting flame" on top burners is more economical than a high one, for the reason that the rushing of a kettle to the boiling point with a high flame permits a greater heat escape around it.

H. T. C.

New York

On a piece of equipment using a burn designed to operate at 11 in. of water colum the best operating results and efficiency will b obtained when the exact pressure is availab

A drop of 2 in. is well within the rang of satisfactory operation of B-P Gas domest burners. However, dropping the pressure belo the ideal operating pressure will not lower th consumption of gas except to the extent tha the appliance cannot burn sufficient fuel t accomplish the purpose desired, in which cas the installation could not be considered satis factory.

The proper pressure at top burner should be that which will produce a flame of sufficient height to burn completely under the utensil without impingement on it. The size of starting flame is determined by the shape and size of the utensil. A smaller flame uses less gas per minute but requires more minutes. Dilution of the hot gases with excess cold air drawn around the burner and radiation of heat from the utensil to the surrounding atmosphere are negative factors in using a low starting flame.—Ed.

•

Gentlemen:

Will you kindly advise if you have a chart available showing the weight per gallon of propane and butane at the various temperatures? I would like, if possible, to have one showing the mixture of 70% propane and 30% butane and one with 60% propane and 40% butane.

F. A. C.

New York

If you will refer to the Third Edition of our Handbook Butane-Propane Gases, upon Pages 43 and 46, you will find the information you seek, except that for a curve of the exact mixtures you name you would have to compute two points and fill in a new line on the chart on Page 46.—Ed.

•

Gentlemen:

Will you please advise us if any manufacturer is making a butane-operated incubator?

M. T.

Missouri

As far as we know there is no butane incubator being built. We understand that some of the manufacturers of electrical brooders are considering making brooders to burn butane and propane, but have not heard that any of these have yet been made.—Ed.

COMMENT

AT last! The war is really over. Or, is it?

•

Texas dealers are forming their own casualty company because established insurance companies have been slow to offer proper protection at proper rates. The dealers will subscribe the funds, share the losses.

Every B-P Gas man who becomes liable for the carelessness of another operator is going to become a self-appointed policeman to correct any hazards he sees.

There's no better way to reduce accidents than to have to pay for any that occur. And there's no better way to show established casualty companies how low the risk is than to prove you are ready to gamble on your own product.

•

What do you think of this—you fellows who don't know where to dig up a prospect?

1. Only 10% of the potential market has been sold.

2. Of the 15,739,109 dwellings not connected with city gas mains, only 1,950,000 now use LP-gas, leaving a potential market of 13,789,209 homes.

•

"Postwar" has come at last. It will, continue to be postwar for a long time (we hope) but the sooner the muchly used word dies a natural death, the better.

•

Flame weeding with B-P Gas is attracting considerable attention because it opens a big field for sales in Southern states.

Flame weeding will reduce tedious, hand cultivation of cotton and sugar cane. Two rows at a time can be treated by a machine that passes between them. Cost savings will amount to about 80% over present methods.

It may create a surplus labor situation, too, down South.

•

What this industry has needed for a long while is an order to abolish all orders. Well, it's come! Now, let's all get to work.

•

Eight natural gasoline plants, six of them owned by independents, were constructed in Texas during the past year. They have a potential recovery capacity of 178,000,000 gallons of liquefied petroleum gases per year.

These are *new* plants in one state only. Does this look like there will be a shortage of butane and propane in the future?

•

Dealers and distributors of liquefied gas are becoming increasingly aware of the benefits which accrue to them individually from cooperative action.

Note the recent organization of the Missouri Liquefied Petroleum Gas Association. This body promises to perform important services for its membership in Missouri. It follows by only a few months the organization of the Colorado state association and by just a year the Texas Butane Dealers Association.

SECRETARY

C.I. STEARNS

State groups, operating under local

statutes, and having individual problems, are in good positions to know the needs of their members.

•

Do you know your own prospects for sales?

Why not send out a questionnaire to every family in your territory in which you list items they may wish to purchase? You will dig up many a fine potential sale and learn something of every family's financial position.

Here is a good form:

Which of the following do you expect to purchase, now that the war is over?

	Order in which you will buy	*Estimated amount you will spend*
☐ **New home**		
☐ **Remodel old home**		
☐ **Refrigerator**		
☐ **Range**		
☐ **Water heater**		
☐ **Space heating equipment**		

How will you pay (cash, instalment)?.....

•

Fred Vinson, the new Morganthau, says the personal income tax must be the chief source of government revenue, now that peace has come, with sales and excise taxes largely eliminated and excess profits taxes repealed.

That will help everybody except the great American majority!

•

Future sales for B-P Gas dealers are tied in closely with new home construction. Every new home needs gas appliances. The best time to sell appliances for new homes is *before* the house is built—by working with the contractor or architect, as well as with the owner.

This applies particularly to heating facilities, for involved are matters of vents, locations of central and floor furnaces and space heaters, insulation, arrangement of rooms for economical heating, etc.

You will perform a valuable service to new home-owners by advising them before they build.

•

Fires occur at unexpected times and in least suspected places. The quicker they are extinguished, the smaller the damage.

Have an ample supply of portable, vaporizing liquid or carbon dioxide fire extinguishers strategically placed about your plant.

But that is not enough. Teach your men how to operate your extinguishers and how best to approach fires.

It's cheap insurance to be prepared.

•

In this column last month we told you to read Mr. McNair's article on commercial cooking. Sorry. The article had to be held over till a later issue.

•

One of our Maine readers just paid in advance for a *six years'* subscription to BUTANE-PROPANE *News*.

That's the kind of a dealer who expects our industry to have a stable future. And it's an even bet he has a modern plant and carefully follows all safety rules. Men who are in this business for keeps, prepare for a long future.

We have been publishing this magazine for more than six years, already, and we plan to continue for all time, so we are entering this subscription on our books.

•

Have you any idea how much heat is generated in a pump by-pass when the liquid is returned to the pump inlet instead of the storage tank? Better read R. Stanley Smith's article starting on Page 37.

•

Now for reconversion.

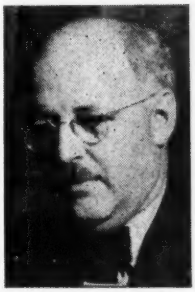
By Ed

MAINLY BEYOND THE MAINS

By ELLIOTT TAYLOR, Washington Editor

The Lid is Off

With the announcement by PAW that limitation order WPB L-86 has been repealed, the liquefied gas industry is once more strictly on its own, and the sky is the limit as far as government restrictions on new expansion are concerned. There is now, of course, a momentary lull as the manufacturers of cylinders, tanks, regulators and fittings effect a speedy reconversion from war output to normal peacetime products. At the present moment the supplies of all types of liquefied gas installation equipment are so scarce that there can be only a few new installations until shipments are resumed by the factories.



ELLIOTT TAYLOR

Most manufacturers are jammed with orders, some of which date back over a period of years. How these orders will be filled, whether in strict order of their acknowledgement or on the basis of the most imperative need, will constitute a problem to tax the best judgment of factories that are genuinely interested in rendering the greatest service to the industry.

We do not believe that any order for equipment, if it represents several months' supply for some one dealer or distributor, should be filled in its entirety by the manufacturer if the filling of that order results in another customer being obliged to go without new equipment for any unnecessarily protracted period.

It is essential to the future welfare of the whole industry that all dealers be able to get under way on the installation of new liquefied gas systems at the earliest possible moment. It is well known that the electrical industry looks toward the intensive cultivation of cooking and water heating prospects in areas beyond existing gas mains as one of its prime opportunities for postwar expansion.

It has been variously estimated that there are from 13,500,000 to 15,000,000 homes in the United States that are not within practical reach of the gas mains. Right now slightly less than 2,000,000 of these are using propane or butane. This of itself is an indication of the potentially great postwar market that is represented by the millions having no gas service at all. To estimate the number now

in the market for gas, we have only to compare the meagre totals of new installations made during the war years with the swelling flood that was being added prior to April, 1942, when limitation order L-86 went into effect. Installations during 1941, the last year of comparatively normal conditions, have been estimated at about 500,000. Thus, the figure for that year alone, was greater than the combined totals for all of the years that have elapsed since then. Our own estimate, based on the best information available in Washington and throughout the industry, is that not over 210,000 new domestic systems were installed from April, 1942, to August, 1945.

It is probable that the installers of butane systems will be able to buy tanks earlier and in a more nearly adequate volume at the outset than will those who require cylinders for the delivery of propane. Underground butane tanks are simpler to manufacture, and some of the southern shops that make this type of equipment had already finished up their war contracts before V-J day and were presumed to be back in limited production of butane tanks for inventory. With restrictions removed these can move out as ordered.

There is an aggrevated shortage of cylinders throughout the entire propane consuming area of the country. But the indications here are that this condition will be only temporary at the worst.

The supply situation in regulators is worse than that in cylinders, judging by the experiences of those in the trade who have attempted to place orders. Manufacturers are said to be promising delivery as far off as 18 months from date of order.

In the matter of gas appliances, notably gas ranges and water heaters, there should be a fair supply of some models within 90 days if sheet steel comes through as promptly as anticipated. In the biggest year the stove industry ever enjoyed, which was 1941, the stove manufacturers put 2,700,000 units on the market. In that same year, water heater manufacturers made approximately a million automatic water heaters. While it is true that the bulk of this output went into homes for manufactured and natural gas consumption, the figures give an idea of the size and capacity of these two industries when they get back on the postwar beam. And it is safe to assume that a larger proportion than ever before will come off the lines equipped to burn liquefied gas.

Thus, the return of peace and the resumption of normal peacetime activity conjures up a fascinating picture of what lies immediately ahead for butane and propane dealers who have held their activities in restraint in accordance with the dark dictates of war.

There is still room for patience and forbearance; there is still demand for good judgment and a reasonable degree of unselfish

ness and cooperation in making limited quantities of equipment serve the greatest good of the industry. But the days of uncertainty and frustration are over.

We anticipate that in a much shorter time than even the producers of gas appliances and equipment now deem possible, adequate supplies will be rolling out to distributors and dealers everywhere. And the new and climaxing era in the growth of liquefied gas will be underway.

Hail and Farewell

As we write these words the liquidation of the government agency that until a few days ago wielded almost unlimited power over the wartime activities of the liquefied gas industry proceeds at a rapid pace. The liquefied petroleum gas section of PAW's natural gas and natural gasoline division expects to be out of business entirely before the end of September.

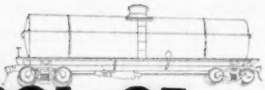
This speedy relinquishing of controls is in accord with the spirit that has actuated the entire PAW since the beginning of the war and, we are glad to record, with a new governmental policy that has become clearly discernable for the first time under the administration of President Truman. Perhaps more than any other Washington agency the PAW has understood and adhered to the old maxim that "he governs best who governs least." As a result it succeeded conspicuously in an effort wherein others endowed with even greater powers of enforcement failed—that of effecting full-time working cooperation and accord between government and business.

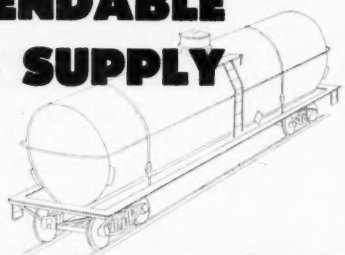
And we are convinced by the evidence of our own continuous observation that nowhere within the ranks of PAW was there a greater degree of confidence and trust reposed in industry than that which was accorded liquefied gas by the head of that section, Paul K. Thompson and his able alter-ego, Gordon Cunningham.

As these two administrators bow out of the government scene, they could very appropriately do so to the sound of sincere and appreciative applause on the part of the liquefied gas industry. For, as bad as wartime restrictions have been, we are convinced that without their patience, their forbearance and their interest in the industry's welfare, matters would inevitably have been far worse.

For honest yeoman service in an unspectacular and at times particularly thankless job, they deserve and will receive the thanks of both government and industry. We deem it a privilege to add our own appreciation of a cooperation that more often than not completely transcended any obligation that public servants may owe to the press. At times they even supplied the factual background from which we were able to criticize their own actions. That, in our book of rules, is known as going the whole way.

SYMBOL OF DEPENDABLE GAS SUPPLY





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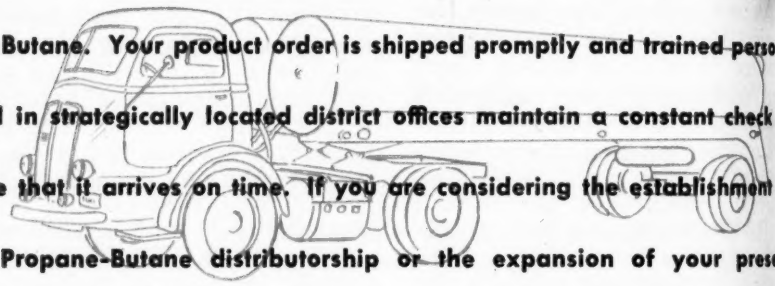

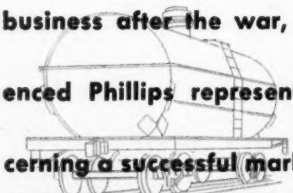

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WAR RESTRICTIONS END FOR B-P GAS INDUSTRY

JAS. E. PEW

PAUL THOMPSON

AFTER practically three and a half years of controls and restrictions, the liquefied petroleum gas industry, like most others in the country, is now about to return to its peace-time development, freed by orders from Washington that cancelled the long-standing limitations.

Most important of the releases was that covering installations of consumer equipment—L-86, with Directions 1 and 2—which was revoked August 23 and became effective the next day.

While certain priorities covering the scheduling of materials may not be revoked until late September, they apply primarily to shortages of only a few materials and are not expected to interfere importantly with manufacturers returning to the production of their regular products.

Beginning July 31 with the cancellation of the order which had rationed gas cooking and heating stoves—undoubtedly prompted by the authentic rumors of peace that were then prevalent—revocations of more than 200 restrictive orders followed during the month of August.

For all practical purposes, the liquefied petroleum gas industry is now ready to resume an unhampered course in its development, rudely interrupted by the war but not remaining stagnant during the war insomuch as the total marketed production of liquefied petroleum gas for the year 1944 totaled 905,600,000 gallons as against 462,852,000 for the year 1941. However, much of that increase was due to the use of B-P gases in industrial war plants.

Already orders are pouring in to manufacturers for equipment and appliances, indicating that propane

BUTANE, PROPANE STILL UNDER CEILING PRICE

Although the Petroleum Administration for War has lifted wartime restrictions on butane and propane, these products are still under OPA regulations as to price and must be sold at legal price ceilings, Earl Sharp, OPA petroleum price specialist, warned Aug. 28.

Mr. Sharp said that some of the trade had the mistaken impression that all restrictions on liquefied petroleum gas had been lifted and pointed out that price control still was in force on these and many other commodities on which production and rationing restrictions had been removed.

and butane dealers and distributors are preparing for the tremendous expansion that opportunity now offers them beyond the city gas mains.

L-86 was originally issued by the War Production Board in April, 1942, after the industry had been governed for some months by M-68-c, a petroleum order.

In the same month, L-79, limiting plumbing and heating equipment installation, became effective, and industry men believed their hands were permanently tied.

Some relief came the next month with Order L-23-c which permitted limited manufacture of frill-less ranges and heating equipment, and authorities began granting exceptions to L-86 for what were termed installations essential to the war effort and in cases where no other fuels were available. Vital commercial and industrial installations were always possible and much of the expansion occurred in those fields.

Stove rationing went into effect June 15, 1943.

Price ceilings were established on butane and propane as of October, 1941, and finally (November, 1944), because of the vast amount of butane used in synthetic rubber and aviation gasoline manufacture, this fuel and mixtures of butane and propane were denied for domestic and internal combustion engine installations. In February, 1945, propane went on the scarce list.

Jas. E. Pew has headed the PAW since October, 1943, and Paul K. Thompson has directed the B-P Gas Section since May of the same year.

Ralph K. Davies has served as Deputy Coordinator (later Administrator) of War since early in 1942, directly responsible to Secretary Harold L. Ickes.

Following are brief enumerations of several orders affecting this industry which have been issued by Washington since the last issue of BUTANE-PROPANE *News:*

To enable industry to carry out its program of $4,500,000,000 for new plant, equipment and alterations in the shortest possible time, J. A. Krug, Chairman of the War Production Board, on Aug. 22 appointed Joseph D. Keenan, the board's vice chairman for labor production, to spearhead the gigantic construction program.

"Particular emphasis will be placed by Mr. Keenan on industrial construction, so that manufacturing activities can be expanded without delay and jobs opened up for returning service men and for workers as they are released from war production," Mr. Krug said.

●

The War Production Board has announced that priority ratings in the AA series have been discontinued except where emergencies, requiring product deliveries before Oct. 1, 1945, are concerned.

Orders may now be placed with cylinder manufacturers without reference to any government agency, except where export is involved. The CMP plan does not go out of existence until October 1, 1945. Rated orders have to take preference until then.

●

As another step in promoting complete and rapid reconversion, the War Production Board officially removed the restrictions on special sales of most but not all, idle, excess and surplus materials on Aug. 22.

Special sales are sales by persons who acquired or made the materials for use and not for sale or resale. In addition, all sales of surpluses by Government agencies are special sales.

Nearly all materials in contract termination inventories and Government surplus may now be sold freely and may be used for any permitted civilian production.

●

All war restrictions on the acceptance of all types of additional residential space heating and the industrial consumption of gas by utility companies have been removed.

●

Edward Falck, director of the War Production Board's Office of War Utilities, disclosed that his organization will wind up its operations and be dissolved by Sept. 30, 1945. The Office of War Utilities was created Feb. 23, 1943, to have jurisdiction over wartime regulation of power, water, gas and wire communications utilities.

Retail Sales Approach Billion-Dollar Mark!

THE percentage rate of gain in annual sales of liquefied petroleum gases declined from 27% in 1942 to 15% in 1943; however, it turned sharply upward in 1944 when comparative deliveries of 905,600,000 gallons were 34% above the 1943 total of 675,233,000 gallons, according to the annual survey made by the Bureau of Mines, United States Department of the Interior.

The 1944 survey was extended to cover material delivered for synthetic rubber components, and when this additional demand is included the 1944 quantity expands to 1,061,809,000 gallons—a total realized in spite of war-time regulations, equipment and transportation difficulties and ever increasing diversions to satisfy the demand for aviation-grade motor fuel, and possible because of greatly increased production of liquefied petroleum gases from both old and new plants.

B-P Gas Sales in 1944
(Exclusive of aviation and synthetic rubber demands)

Butane	132,870,000	Gals.
Propane	323,848,000	"
B-P Mixes	448,882,000	"
Total	905,600,000	"

Gain over 1943: 34.1%.

Petroleum refineries, gasoline plants, and cycle plants co-operating in the 1944 survey reported 156,209,000 gallons of liquefied petroleum gases delivered for synthetic rubber components. Most of this material—144,370,000 gallons or 92%—was indicated as butane or related gases, and all of it was reported for areas east of California.

Omitting sales of material reported for synthetic rubber components so that 1943 and 1944 items will be on a comparative basis, all principal uses of liquefied petroleum gases showed greater percentage gains in 1944 than in 1943, except the demand for industrial fuel, which expanded at a lesser rate than in 1943, and "All other uses," which registered a loss in 1944. The percentage increases in 1944 were quite different from those in 1943, when the demand for industrial fuel showed a larger gain

• The U. S. Bureau of Mines' annual report of liquefied petroleum gases sold the previous year is always received with keen interest.
It furnishes a complete breakdown of distribution of fuels, showing percentages and volumes of butane, propane and butane-propane mixtures marketed to the various divisions of our industry.
Prepared by A. T. Coumbe, Petroleum Economics Division, the report is an authoritative guide to actual uses and to the trends that indicate the direction of industry movement.—Editor.

TABLE 1. SALES OF LIQUEFIED PETROLEUM GASES IN THE UNITED STATES, 1938-1944

(Thousands of Gallons)

Year	Butane	Propane	Butane-propane mixtures	Pentane	Quantity	Total percentage increase over previous year
1938	52,768	54,130	56,050	2,253	165,201	16.8
1939	71,351	79,323	69,020	3,886	223,580	35.3
1940	77,056	109,216	123,348	3,836	313,456	40.2
1941	112,244	126,969	219,252	4,387	462,852	47.7
1942	128,560	150,511	301,917	4,452	585,440	26.5
1943	140,122	218,273	312,683	4,155	675,233	15.3
1944[1,2]	277,240	335,377	449,192	[4]	1,061,809	57.3
1944[1,3]	132,870	323,848	448,882	[4]	905,600	34.1

[1] Subject to revision. [2] Includes material delivered for synthetic rubber components. [3] Material delivered for synthetic rubber components omitted to compare with 1943 totals. [4] Figures not available.

and other principal uses smaller rates of expansion than in 1942.

Sales of liquefied petroleum gases for domestic use increased by 29% from 339,380,000 gallons in 1943 to 438,552,000 in 1944. The important gain in 1944 indicates that the downward trend in the annual expansion rate (65% gain in 1941, 36% in 1942 and 13% in 1943) has been arrested and that distributors are finding ways to overcome appliance and transportation difficulties in order to market a growing production.

Manufactured gas companies are using an ever larger amount of liquefied petroleum gases for direct distribution or for stand-by gas, and they increased their purchases by 27% from 37,519,000 gallons in 1943 to 47,768,000 in 1944.

Deliveries of liquefied petroleum gases for industrial fuel rose from 149,429,000 gallons in 1943 to 163,036,000 in 1944—a 9% gain in contrast to a 31% expansion in 1943 over 1942. The lower rate of increase in 1944 reflects equipment and transportation difficulties and also the diversion of butane for other purposes.

A greatly stepped-up use of liquefied petroleum gases as raw material for chemical manufacturing is indicated in sales of 151,985,000 gallons for this purpose in 1944—a quantity nearly triple the 1943 demand of 55,356,000 gallons. Part of this growth reflects expansion under war conditions; however, some of it is due to more complete reporting of this demand in 1944 than in 1943.

Liquefied petroleum gases delivered for internal combustion engine fuel increased from 87,834,000 gallons in 1943 to 101,760,000 in 1944—a 16% gain compared with a 7% increment in 1943 over 1942.

Restrictions on butane equipment and its diversion for the manufac-

ture of synthetic rubber and high-octane motor fuel have tended to lower the relative proportion marketed for fuel purposes. The butane item in the annual sales has dropped steadily from 24% of the total in 1941 to 15% in 1944 and most of this decline occurred in 1944 when non-fuel demands for butane approached peak levels.

Propane Carries Fuel Load

The fuel load has shifted to propane and butane-propane mixtures, and relative proportions for these gases have increased in recent years. The share of propane in the annual total has mounted from 27% in 1941 to 36% in 1944, whereas "mixtures" have expanded from 47 to 50% of the total in the same period.

The rise in relative proportions for these gases during the several years has not been constant, however, as the percentage share for propane declined in 1942, when there was an unusual increase in deliveries of butane-propane mixtures. Then the percentage of "mixtures" in the total dropped in 1943, to be followed by a gain in 1944.

Pentane reported in the annual survey has made up less than 1% of the total in recent years, so this "gas" was dropped from the 1944 schedule as being relatively unimportant. Furthermore, some authorities have contended that, strictly speaking, pentane should not be included as a liquefied petroleum gas.

Deliveries of butane declined 5%, from 140,122,000 gallons in 1943 to 132,870,000 in 1944, as restrictions governing certain uses were enforced and larger quantities were diverted for raw material to the synthetic rubber and chemical industries.

Shrinkage in the consumption of butane as a domestic fuel, first noticed in 1943 with a 2% decline, was strongly evident in 1944, when sales of 27,565,000 gallons were 38% below the 1943 total of 44,255,000 gallons.

The use of butane as motor fuel, which is greatly limited under present conditions, has declined from 14,870,000 gallons in 1942 to 9,895,000 in 1943 and to 4,030,000 in 1944.

Sales of butane for industrial fuel, which showed some expansion in 1942 and 1943, declined by 6% from 56,143,000 gallons in 1943 to 52,890,000 in 1944, although equipment for the use of industrial plants is not limited.

Gas Company Use Up 14%

Manufactured gas companies, under no restrictions regarding equipment for the handling of butane and endeavoring to take care of more customers and heavier service loads, purchased 24,900,000 gallons of butane in 1944, or 14% over 1943 requirements of 21,829,000 gallons.

The use of butane as raw material in the manufacture of chemicals showed a strong upward trend in 1944, and the demand of 23,475,000 gallons was far above the 1943 total of 7,972,000 gallons.

Changes in the principal demands for butane stand out when reviewed with respect to the percentage angle of total sales. Butane

TABLE 2—MARKETED PRODUCTION OF LIQUEFIED PETROLEUM GASES BY USES AND REGIONAL DISTRIBUTION, 1943-44
TOTAL — ALL GASES

(Thousands of Gallons)

	1944 [1, 2]		1944 [1, 3]		1943	
	Total	% of Total	Total	% of Total	Total	% of Total
Domestic	438,552	41.3	438,552	48.4	339,380	50.3
Pacific Coast area	73,465	6.9	73,465	8.1	53,946	8.0
All other areas	365,087	34.4	365,087	40.3	285,434	42.3
Gas manufacturing	47,768	4.5	47,768	5.3	37,519	5.6
Pacific Coast area	13,390	1.3	13,390	1.5	15,060	2.2
All other areas	34,378	3.2	34,378	3.8	22,459	3.4
Industrial fuel	163,036	15.4	163,036	18.0	149,429	22.1
Pacific Coast area	14,577	1.4	14,577	1.6	14,147	2.1
All other areas	148,459	14.0	148,459	16.4	135,282	20.0
Synthetic rubber components	156,209	14.7	...	..	(4)	(4)
Pacific Coast area	...	..	...	..	(4)	(4)
All other areas	156,209	14.7	...	..	(4)	(4)
Chemical manufacturing	151,985	14.3	151,985	16.8	55,356	8.2
Pacific Coast area	19,084	1.8	19,084	2.1	...	..
All other areas	132,901	12.5	132,901	14.7	55,356	8.2
Internal-Combustion engine fuel	101,760	9.6	101,760	11.2	87,834	13.0
Pacific Coast area	45,579	4.3	45,579	5.0	47,796	7.1
All other areas	56,181	5.3	56,181	6.2	40,038	5.9
All other uses	2,499	.2	2,499	.3	5,715	.8
Pacific Coast area	2,471	.2	2,471	.3	5,652	.8
All other areas	28	..	28	..	63	..
Total sales	1,061,809	100.0	905,600	100.0	675,233	100.0
Pacific Coast area	168,566	15.9	168,566	18.6	136,601	20.2
All other areas	893,243	84.1	737,034	81.4	538,632	79.8

[1] Figures for 1944 subject to revision. [2] Includes material delivered for synthetic rubber components. [3] Material delivered for synthetic rubber components omitted to compare with 1943 totals. [4] Figures not available.

reported for domestic fuel has declined from 35% of all demands in 1942 to 32% in 1943 and down sharply to 21% in 1944.

The proportion of butane consumed as motor fuel has shown a similar downward trend from 12% of all requirements in 1942 to 3% in 1944.

Butane credited as industrial fuel has remained fairly constant at about 40% of all principal uses in recent years but the percentage share sold to manufactured gas companies of 19% in 1944 is double the 1942 proportion.

The percentage of butane sales reported for chemical raw materials mounted sharply from 6% in 1943 to 18% of the 1944 total.

That a large share of the fuel load formerly carried by butane

has been shifted to propane under present conditions is evident in the 48% gain in sales of propane from 218,273,000 gallons in 1943 to 323,848,000 in 1944. All principal uses of propane showed outstanding gains in 1944.

Domestic Gallonage Increases

Deliveries for domestic consumption increased by 34% from 124,670,000 gallons in 1943 to 166,947,000 in 1944. It should be noticed however that as propane is diverted to other uses, the share credited to household consumption has declined from 75% of the total demand in 1942 to 57% in 1943 and then to 52% in 1944.

Industrial plants have turned strongly to propane for fuel in place of butane and the demand has expanded from 20,601,000 gallons in 1942 to 73,698,000 in 1943 and to 90,674,000 in 1944. Manufacturing plants again used more propane than butane in 1944, as they did for the first time in 1943. Furthermore, propane delivered for industrial fuel made up 28% of the total for all uses in 1944 against a 34% share in 1943.

Requirements for propane by manufactured gas companies increased from 8,117,000 gallons in 1943 to 17,103,000 in 1944; however, the 1944 item for this particular use was still below the corresponding demand for butane.

Sales of propane for raw material to chemical manufacturing plants jumped from 4,455,000 gallons in 1943 to 40,666,000 in 1944; however, it is believed that the 1943 demand was not fully reported.

Propane used as fuel in internal combustion engines advanced from 4,592,000 gallons in 1943 to 6,650,000 in 1944, and the latter quantity is above the corresponding butane item for the first time in 1944.

Deliveries of butane-propane mixtures in 1943 were little above the 1942 total, but in 1944 when there were difficulties in obtaining enough butane for all purposes there was a general turning to both propane and to butane-propane mixtures for fuel and for raw material in the chemical industry. Reported sales of "mixtures" increased by 44% from 312,683,000 gallons in 1943 to 448,882,000 in 1944 and the expansion was limited largely to domestic-fuel and chemical-manufacturing demands.

More than half (54% in both 1943 and 1944) of the butane-propane mixtures was sold for domestic fuel, and requirements increased by 44% from 169,818,000 gallons in 1943 to 244,040,000 in 1944.

"Mixtures" delivered as raw material to chemical plants made up 20% of the 1944 total (13% in 1943), and the quantity more than doubled from 39,584,000 gallons in 1943 to 87,844,000 in 1944.

Engine Fuel Demands Grow

Liquefied petroleum gases used as fuel in internal combustion engines are usually a mixture of butane and propane, and the demand has expanded steadily in spite of restrictions. "Mixtures" delivered for engine fuel constituted 20% of all demands in 1944 and the total of 91,080,000 gallons was 24% over 1943 deliveries of 73,344,000 gallons.

Industrial plants turned strongly to propane for fuel in 1943 and 1944, and as a result their purchases of butane-propane mixtures remained at the same level—19,472,000 gallons in 1944 and 19,474,000 in 1943.

Manufactured gas companies have increased their demand for both butane and propane in recent years; however, their requirements for "mixtures" have dropped from 7,532,000 gallons in 1943 to 5,765,000 in 1944.

AGA Lists Town Plants

The American Gas Association has reviewed the distribution of liquefied petroleum gases by manufactured gas companies in 1944 as follows:

"At the end of 1944, liquefied petroleum gas was being delivered through mains to consumers in 224 communities in 32 states by 101 companies supplying 94,660 consumers.

"Butane-air gas, with heating value ranging from 520 to 1,600 Btu per cu.ft., was supplied to 166 communities in 31 states. A mixture of undiluted butane and propane gas with a heating value of 2,800 to 3,000 Btu per cu.ft. was supplied to 18 communities in Arizona, California and New Mexico. Undiluted propane gas with a heating value of 2,550 Btu per cu.ft. was supplied to 40 communities in Maryland, Minnesota, New Jersey, North Dakota, Virginia and Wisconsin."

Partly estimated totals covering sales of liquefied petroleum gases in the Pacific Coast area—California, Oregon, Washington, Arizona and Nevada—indicate a demand of 168,566,000 gallons in 1944, a 23% gain over 1943 deliveries of 136,601,000 gallons. Liquefied petroleum gases marketed on the Pacific Coast constituted 19% of the national total in 1944 and 20% in 1943.

Distributors in "all other areas" reported sales of 737,034,000 gallons of liquefied petroleum gases in 1944 compared with a market for 538,632,000 in 1943—an increase of 37%. An additional quantity of 156,209,000 gallons of liquefied petroleum gases was diverted to plants east of California in 1944 for the manufacture of synthetic rubber.

One hundred twenty-eight petroleum refining and natural gas companies reported their sales of liquefied petroleum gas to the Bureau in 1944 compared with 115 in 1943. The number reporting in the Pacific Coast area increased from 21 in 1943 to 25 in 1944, while for all other areas the total was 94 in 1943 and 103 in 1944.

AGA Will Hold Annual Meeting Oct. 24 in New York

The American Gas Association will hold its 27th annual meeting in New York City on Oct. 24 in the auditorium of the Engineering Societies building.

Because of the strain upon hotel accommodations and railways due to returning soldiers, the convention will be limited to a one-day session. Last year's gathering was called off because of the difficulty of travel.

At this year's meeting officers will be elected by the general membership in the morning. The luncheon hour and the remainder of the day will be devoted to organizational work by departments and committees.

"Fighting fire with fire" is here being demonstrated by a new butane-pressured, flame-throwing torch for setting back fires in forest areas.

Portable Flame Thrower Operated By Butane

FIGHTING fire with fire is being reduced to a science by the Los Angeles Department of County Forester and Fire Warden with the completion by the Arroyo Seco Division headquarters, La Canada, Calif., of a flame-throwing torch that may be operated from six to eight consecutive hours and is portable enough to be taken into rugged mountain areas.

Heat from this torch is so intense that it will cause even the greenest of vegetation to burn, thus saving many man hours of line cutting with hand tools, at times when it is necessary to resort to emergency methods to halt forest and brush fires.

Pressure from Butane

A 90-lb. butane tank furnishes the pressure which operates a 35-gal. tank of diesel fuel. On this first unit, which has been constructed at the Arroyo Seco Division station by Henry Wertz and Vernon May, a 5-ft. hose, with fire nozzle attached, throws the flame. Capt. Ward Kleinsmith, who super-

Photos: Courtesy Pasadena Star-News and Pa

Close-up view of 90-lb. butane tank and 35-gal. diesel fuel tank. Sitting beside the unit are Henry Wertz (left) and Vernon May who constructed it. Standing (left to right), Capt. R. A. Ireland; Allen Gibson; Capt. Ward Klinesmith, and Battalion Chiefs Paul H. Clark, Pierre Daries, and Cecil R. Gehr.

vised the construction of the unit, said plans are now under way to have units made with a 100-ft. hose in order that fire fighters may reach over ridges and down slopes to set back fires.

County forester and fire wardens also hope to develop small portable units that may be carried by individual fire fighters into areas inaccessible by truck or patrol wagon.

The present model is designed to be transported by motor over forestry fire roads. "Our idea has been to get away from the mechanical equipment, such as compressors, which heretofore has been necessary to operate a flame throwing torch," Capt. Kleinsmith ex plained. This unit may be take into the brush and forest lan with little chance of its operati equipment breaking down. The bu tane tank not only furnishes pre sure but operates the burner on th fuel tank.

Development of this flame-throw ing unit follows many weeks study and planning by a comm tee appointed by Chief Cou Forester and Fire Warden Spen D. Turner, with Allen Gibson chairman.

A few perfecting touches for t new invention now are being co pleted by the committee.

Missouri State Association Formed By B-P Gas Dealers

DEALERS and distributors of B-P Gas in Missouri organized a state-wide association on June 29 to "promote the social, educational and scientific welfare of liquefied petroleum gas . . . and to handle their their mutual problems." The meeting was held in Jefferson City.

W. A. SCHUETTE

W. A. Schuette, of Washington, Mo., was elected to the presidency, and C. I. Stearns, Eldon, Mo., was named secretary-treasurer. The official name adopted is the Missouri Liquefied Petroleum Gas Association, and headquarters will be at Eldon. One vice president was elected from each of the four geographical districts into which the state was divided.

Meetings will be held consecutively in the various districts, the first of which was held July 29 in Kansas City, Mo., at which a working constitution was adopted.

Voting membership will be limited to active members, with each active member having one vote. An active member is a person operating bulk storage facilities whose business is the sale of liquefied petroleum gas directly to ultimate consumers or indirectly to ultimate consumers through regularly established dealers.

The organizing group of B-P Gas dealers and distributors who launched the Missouri Liquefied Petroleum Gas Association June 29. The women in the photograph are (left to right) Mrs. Winnie Steck, Mrs. Mildred Rook, Mrs. C. I. Stearns, and Mrs. E. Leon Stearns.

Active members will operate the association. In the interim between their meetings they will be represented by a board of directors consisting of 14 members elected by the active members from the four convenient districts into which the state has been divided.

The full executive committee of 14 members consists of:

W. A. Schuette, president, Washington; C. I. Stearns, secretary-treasurer, Eldon.

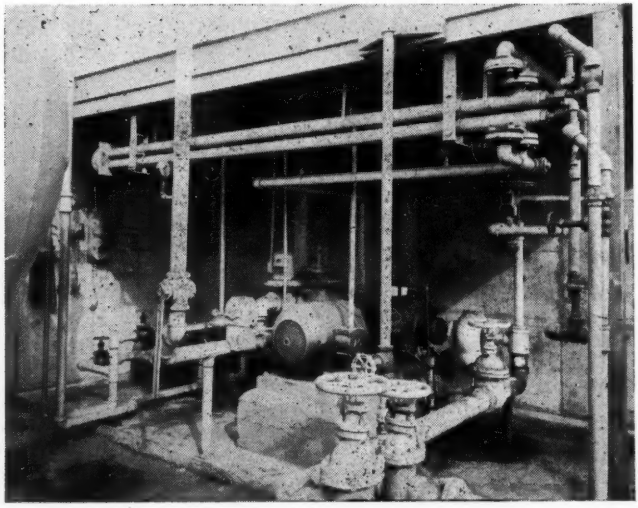
District No. 1 — Homer Braswell, vice president, Hickman Mills; A. C. Turner, Chilhowee; L. H. Davis, Odessa.

District No. 2—H. E. Mikels, vice president, Green Top; Don Fike, McCreedie; Ken Dickson, Moberly.

District No. 3—John Bales, vice president, Springfield; Monte Taylor, Joplin; A. E. Elkins, Wheaton.

District No. 4—J. E. Moore, Jr., vice president, Sikeston; E. J. Schroeder, Freeburg; Mrs. Winnie Steck, Richmond Heights.

The executive board directed Mr. Schuette and Mr. Stearns to draw up by-laws for the association. The legislature committee is composed of the president and the four sectional vice presidents, and a safety committee was formed to advance the cause of safety among association members and the industry generally. This committee consists of Ken Layton, Sikeston, chairman; Dick Baker, Otterville; K. H. Dickson, Moberly; C. D. Schmitz, Lamar, and H. Baur, St. Louis county.



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Propane pumps and diluter at Boeing plant No. 2, Seattle. Installation by Liquified Gas Corp.

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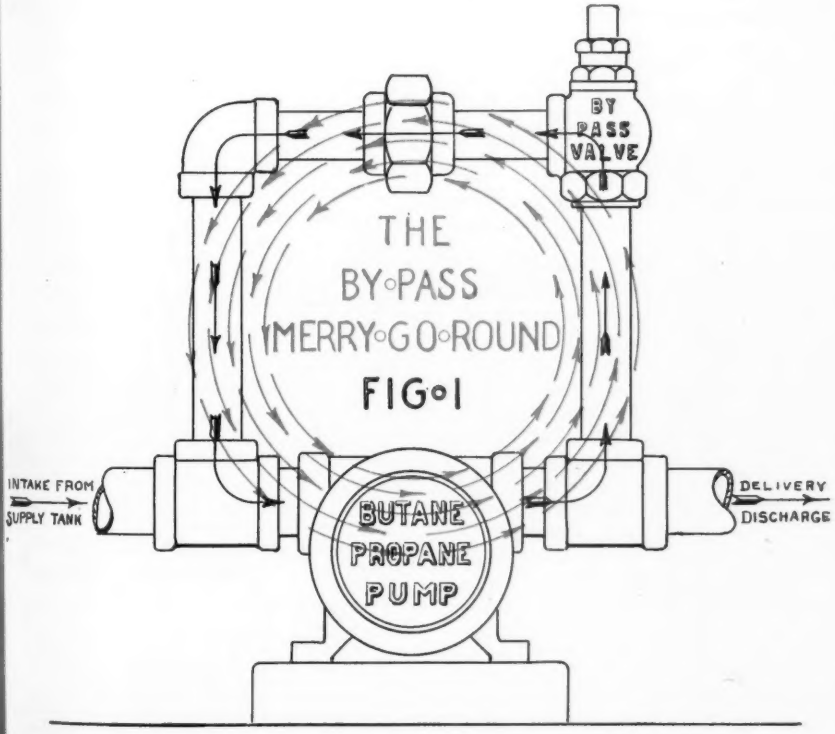
PUMP PROBLEMS

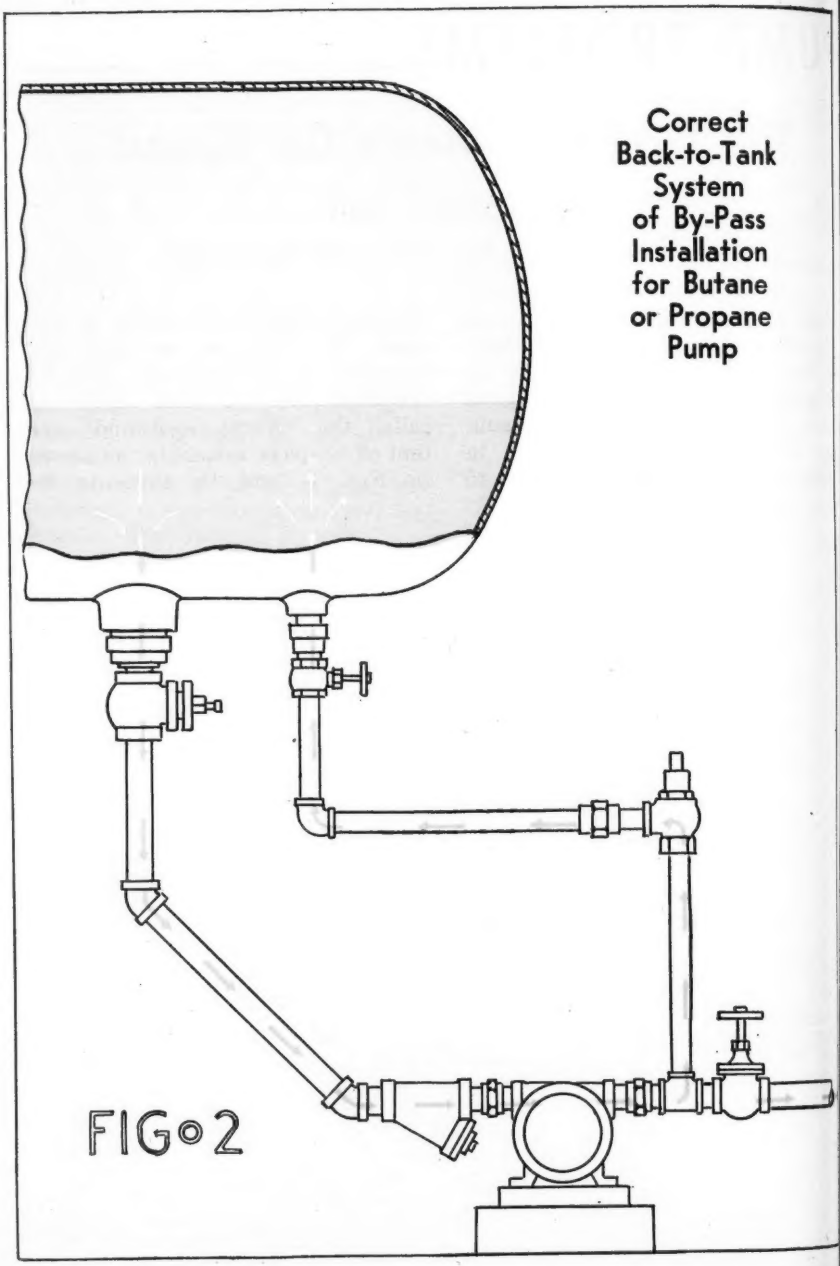
The By-Pass "Merry-Go-Round"

By R. STANLEY SMITH

Manager, Smith Precision Products Co., South Pasadena, Calif.

THE correct installation of the pump by-pass valve is an item of the greatest importance to the success of every butane or propane plant. Therefore, while this subject has been briefly mentioned in previous articles, it is intended to give it exclusive attention in this issue. In doing so, we wish particularly to condemn the still too frequent use of what might be called the "Merry-Go-Round" system of by-pass assembly, as shown in Fig. 1, and to advocate the




Correct
Back-to-Tank
System
of By-Pass
Installation
for Butane
or Propane
Pump
FIG. 2

"Back-to-Tank" type of installation, illustrated in Fig. 2.

What is the purpose of a by-pass valve in a butane or propane pump installation?

One important use is to provide a means of pressure relief in the event the pump is started against closed valves, or in the event valves are closed before the pump is stopped. We might say that this use of a by-pass valve is somewhat similar to that of a safety valve on a steam boiler, which is to permit the release of excess strain before any damage is done.

What other use has the by-pass valve?

A second very important use is to adapt the pump to various capacity requirements. This result is accomplished by the by-pass valve which permits the release of any excess volume of liquid pumped. By this means, a pump of 30 to 50 gallons per minute capacity, may serve at times to supply as little as 5 to 10 GPM, which might be desirable in the case of filling a single bottle or small container having a small valve.

At what pressure would such a by-pass valve be set to operate?

A by-pass valve for a pump in bottling service is usually set at 50 to 60 pounds differential, for either butane or propane. The valve then holds the pump outlet line up to this differential pressure, but permits all excess liquid to by-pass.

What is meant by "differential pressure?"

When we say we have a differential pressure of 50 pounds per square inch, we mean that the difference between the pump intake pressure and the pump outlet pressure is 50 pounds. For example, the pressure of 100% propane, entering the pump at 80°F., would be 128 pounds gage reading, in which case, if the by-pass valve were set for a 50 pound differential, the pump would discharge through the by-pass line under a pressure of 128 pounds plus 50 pounds, which is equal to 178 pounds total gage pressure. If, however, we were pumping a butane-propane mixture having a vapor pressure of 80 pounds, this same valve would hold the discharge pressure to 80 pounds plus 50 pounds, or 130 pounds. The 50 pounds of differential at which the valve is set would be the "working differential" in either case, and represents the difference between the pump discharge pressure and the vapor pressure in the tank. It is the force in pounds per square inch above the tank pressure, which is available to deliver the fluid through the outlet discharge fittings into another tank having the same vapor pressure.

What is meant by the "Merry-Go-Round" system of by-pass valve assembly?

This is the type of installation which has been quite universally adopted for rotary pumps designed to handle water or oil. It is the type of by-pass assembly wherein all the by-passed fluid is returned to the pump inlet. By this arrangement, the outlet pressure is relieved, but in turning back the by-passed liquid to the pump inlet, the very same body of liquid may be continuously recirculated. With the pump discharge valves completely closed, the entire pump capacity is forced through this "Merry-Go-Round" circuit, and after each passage through the valve, is returned to the pump inlet. Since there can be no discharge, no new liquid can enter the pump.

What is the result of this continuous recirculation?

Before stating the final result, we should first explain that a spring loaded by-pass valve is really a heat generator. It is a device which converts pressure energy to heat energy.

In what way does the by-pass valve create heat?

When power energy is used to turn the pump shaft, high pressure fluid is discharged at the pump outlet. The power energy is in this case, converted and stored up in the form of pressure energy. When this fluid pressure energy is then released through the by-pass valve, the energy is again reconverted into heat. The actual heating of the liquid is caused by the violent turbulence and fluid friction which results from the high pressure fluid escaping through the valve restrictions.

Is there any way of determining just how much heat will be developed when fluid under pressure is released?

Yes, this conversion follows exact mathematical laws. When a certain amount of fluid under a certain pressure is released, the exact energy lost is converted into an exact heat gain.

Can we then analyze what happens in a "Merry-Go-Round" system of by-pass assembly?

Let us take an example of a pump having a capacity of 50 GPM and unloading its entire output through a by-pass valve set at 60 pounds differential, and arranged in an assembly as shown in Fig. 1. In order to demonstrate the worst conditions, we can assume that the pump outlet is completely closed so the entire pump discharge passes through the by-pass valve and back to the pump intake in a continuous circuit. Suppose, for the first example, that we determine the results based on pumping water, because this is what pumps having this type of by-pass assembly were originally designed for. Let us assume that the pump and by-pass valve, including the by-pass piping circuit, contained just one gallon of liquid, (which is probably about an average set-up.) Then, since the pump is to handle 50 GPM, the entire liquid contents of the pump and by-pass system will flow through the by-pass valve 50 times in each minute.

Just how hot would this water get, say in each minute of operation?

Mathematical calculation shows that this one gallon of rapidly circulating water would increase its temperature just about 25°F. during each minute of operation.

What harm would this do?

In the case of water, which would have to be raised to 212°F. before it would boil under atmospheric pressure, the pump could be operated for at least several minutes. As long as the water remained liquid it could still be pumped, but as soon as it started to boil and develop steam, the pump would lose its efficiency.

Would the results be similar in pumping butane or propane?

No. The conditions in the case of butane or propane would be decidedly worse.

Why is this?

We have seen that when pumping water at a normal temperature of 80°F., as in the example given above, this temperature is so far below the boiling point of water that such heat as is developed from a 50-pound setting of the by-pass valve, can be added for some time

without changing the water from liquid into steam. On the other hand, with butane or propane, which are handled right at their boiling points, any addition of heat goes immediately into converting liquid to vapor. Now when this heat, which is capable of changing liquid into gas, is constantly conserved and returned to the pump inlet, it is possible almost instantly to convert the liquid content to gas at the pump intake. That is why the "Merry-Go-Round" system must be condemned for any B-P Gas installation.

Taking the same example as with water, what would happen when we started to pump butane or propane through the same "Merry-Go-Round" by-pass system?

Again assuming that the pump outlet valves are closed, and that the entire capacity of the pump is forced through the by-pass system, and basing our estimates on the handling of propane at 80°F. tank temperature, this is what would happen: If we make no allowances for radiation or for what heat might be conducted through the pipe and metal walls, it would take just 10 seconds of operation to produce enough propane vapor to blow the entire liquid contents of the pump and by-pass system back into the tank, leaving the pump totally dry.

If the pump were operated with about 50% of its capacity being discharged, and with the other 50% going back through the by-pass "Merry-Go-Round," this would be a more usual condition. What would take place in this case?

Just half as much heat would be produced and this would be returned to the pump intake as before. Under these conditions, however, there would still be enough heat generated to create a large volume of gas, which would combine with the intake fluid in the form of foam, and very seriously reduce pump efficiency.

Does a pump with a "built-in" by-pass valve operate in the same way?

Yes, a "built-in" by-pass would be very definitely in the "Merry-Go-Round" class. In fact, the total contents of the circuit would no doubt be less than that of an exterior piped-up valve, and so there would be an even faster conversion to gas, and there would be less opportunity for radiation or loss of heat.

How should a by-pass valve be installed to avoid these difficulties?

Fig. 2 shows the correct installation of a by-pass valve for a butane or propane pumping plant. Very little additional work or material is involved in this type of assembly, and, as can be readily seen, this slight change overcomes all the troubles which we have suggested relative to the "Merry-Go-Round" system.

Will you explain this?

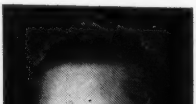
In the first place, there is no cumulative effect in building up the temperature of the by-passing liquid through repeated recirculations. Whatever liquid is by-passed, and consequently charged with heat, is immediately returned to the supply tank, and it will not matter if the entire pump capacity is by-passed or only part of it. Whatever heat is produced is at once dispersed.

Will continuous return of hot by-passed fluid to the storage tank eventually produce any bad effects?

No, on the contrary, any heat returned to the supply tank merely builds up a slight additional tank pressure which in the end really aids in the development of discharge pressure.

W. E. Fraley Heads Texas Group

W. E. FRALEY



WM. J. LAWSON

AT the first annual meeting of the Texas Butane Dealers Association, held in Austin, Texas, July 9, W. E. Fraley was elected president, Wm. J. Lawson, executive secretary has announced. Mr. Fraley, a Board member for the past year, operates Fraley and Co. in Abilene.

Other officers elected were Bryan White, White Gas Co., Port Arthur, first vice president; Lyle Blanton, Blanton Butane Gas Co., Hereford, second vice president; Gus J. Moos, Hydro Gas Co., Austin, secretary-treasurer, and C. H. Lacey, Consumers Butane Gas Co., Dallas, executive committee member.

Directors named by state-wide ballot, other than the officers given above, include, H. C. Pittman, Automatic Gas Co., Inc., Tyler; L. K. Haines, Pittsburg Water Heater Sales Co., Houston; J. L. Ludding-ton, Federal Petroleum Co., Harlingen; Greg Walsh, Vapo Gas Fuel Co., San Antonio; M. E. McKay, Hydro Gas Co., Lampasas; Elmer L. Atkins, Allen Butane Gas & Equipment Co., Arlington; E. W. Hampton, E. W. Hampton Co., Vernon; Alex Schubach, Automatic Gas Co., Brackettville; W. Don Maxwell, Maxwell Butane Co., Odessa, and Robin Baker, Baker-Fleming Flash-O-Gas Co., Plainview.

Plans for a program of work for the forthcoming year were discussed at the meeting, and a review and reports of the past years operations were made.

Texas R.R. Commission Will Tell Dealers About License Forms

The Railroad Commission of Texas has sent out the following letter to Texas dealers:

"We have had numerous requests for forms to be used in connection with renewing liquefied petroleum gas licenses on Sept. 1, 1945.

"Senate Bill No. 269, which is the new law governing the liquefied petroleum gas industry in Texas, becomes effective on Sept. 4, 1945. It is impossible for the Railroad Commission to prescribe forms and promulgate rules and regulations under this new law before its effective date.

"Just as soon as these forms are adopted and made available for distribution, all licensees will be furnished with copies and with instructions as to the procedure to be followed in renewing their licenses.

"You are requested to wait until you hear from us further before mailing in your application or bond for the purpose of renewing your license.

"GUS J. STRAUSS,
"Director."

Women's Needs Dictate Range Design

By Geraldine Corman

Home Economics Director, A. J. Lindemann & Hoverson Co., Milwaukee, Wis.

INCREASING use of B-P Gas more than adequately demonstrates its merits as a modern cooking fuel. In many areas, this gas offers the best opportunity for providing the kitchen with a completely de luxe range.

GERALDINE CORMAN

If buyers select their ranges from a reputable manufacturer, they can be assured of a pleasing design, sturdy construction and good performance. Behind such products, however, must be a test kitchen—alert and thoroughly efficient.

Reliable ranges are developed through research. Manufacturers realize that a sale is not complete until Mrs. Buyer has actually used her range and has been satisfied. In no way is this satisfaction accidental.

Just how does the home economist fit into the scene? Too often, the home economist is known for her cooking schools—period. Yet—she plays many roles, for the activity "behind the scenes" is fully as important as her promotional work.

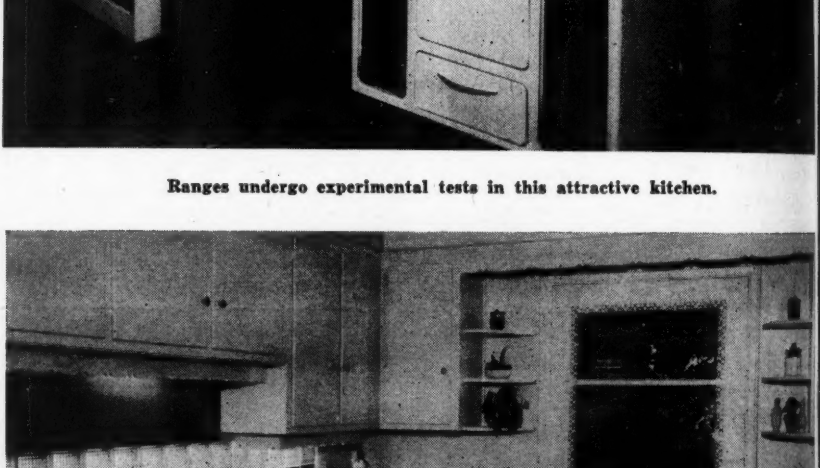
"Kitchen Testing" at the factory,

▲

An assembly line in a modern stove plant.

▼

Ranges undergo experimental tests in this attractive kitchen.



New models are subjected to life tests in this completely equipped laboratory.

before a range has been approved for production, is the only sure method of insuring correct performances in the field. There is no guess work. A repetition of bake checks during production under ordinary homelike conditions with the use of practical everyday recipes is the customer's assurance of continued quality.

The real approach to range development is a long, deliberate journey. Through field research emerges the standard for a new range. This formula is then turned over to the engineering department where the physical characteristics for a working model are determined. After a series of experimental ranges are developed, an acceptable model is then presented to the home economist who gives it every conceivable performance test.

As recommended changes are incorporated, the range is repeatedly rebuilt and tested again until finally there emerges a product that will perform to the utmost—will delight the eye of every user. To meet the severe requirements, many improvements have been created that contribute, in a substantial way, in making the important job of preparing meals easier and more certain.

Embodies Excellent Features

Oven controls have been held within close tolerances which add to more certain baking results. Insulation aids have been developed to conserve fuel, improve browning results and enhance kitchen coolness. Many accessories have been adopted both for functional and selling appeal.

The duplex burner solved the surface cookery pleas for high-low temperature. The one-piece porcelain body—the one-piece porcelain top and backguard, especially designed for rounded corners and smooth finishes, are favored for durability and easy cleaning. The two-temperature oven made it possible to bake biscuits and cakes simultaneously in the same oven and at two different temperatures, or to bake six loaves of bread at one time and at one temperature.

By no means is the tooling, engineering, manufacturing, advertising and selling of B-P Gas ranges insignificant. However, these activities are made more effective by the program of the home economist "behind the scenes."

To give the best cooking performances, a range must be "Kitchen Tested"!

Isoprene Recovery Plant Will Double Rubber Production

Jan Oostermeyer, executive vice president, Shell Chemical Division of Shell Union Oil Corp., announced in San Francisco recently that his company is proceeding with plans for the construction and operation of a $2,000,000 isoprene recovery and purification project to be located adjacent to the butadiene plant now being operated in the Los Angeles area by his company for the Reconstruction Finance Corp., Office of Rubber Reserve.

Isoprene is used in the manufacture of a type of synthetic rubber particularly adapted to inner tube uses for automobile and truck tires as well as a number of other specialties.

The proposed plant will be the largest single isoprene installation in this country.

B-P Gas for Torches and Furnaces

IT would be impossible for me to tell you about all of the actual and possible applications of furnaces and torches to American industry. Before the war there were over 50,000 listed factories in the United States. More than 51% of these were directly engaged in the processing of metals. The other 49% used machinery which required servicing, and the majority of them had their own maintenance departments which usually contained a machine shop.

There is no machine shop but what can use B-P Gas torches and furnaces to advantage at times. Forget for the moment the 50,000 American factories of which some 25,500 process metals, but think of the approximate 50,000 machine shops which they must maintain.

Add to these the some 15,000 independent machine shops, then about 18,000 garages that have machine shop equipment. Here are 83,000 potential gas users. Then to this add all of the plumbers, tinsmiths, service shops, painters and electricians; all of these have use for torches and many could use furnaces to advantage. The total potential market would be an extremely conservative half million commercial and industrial users!

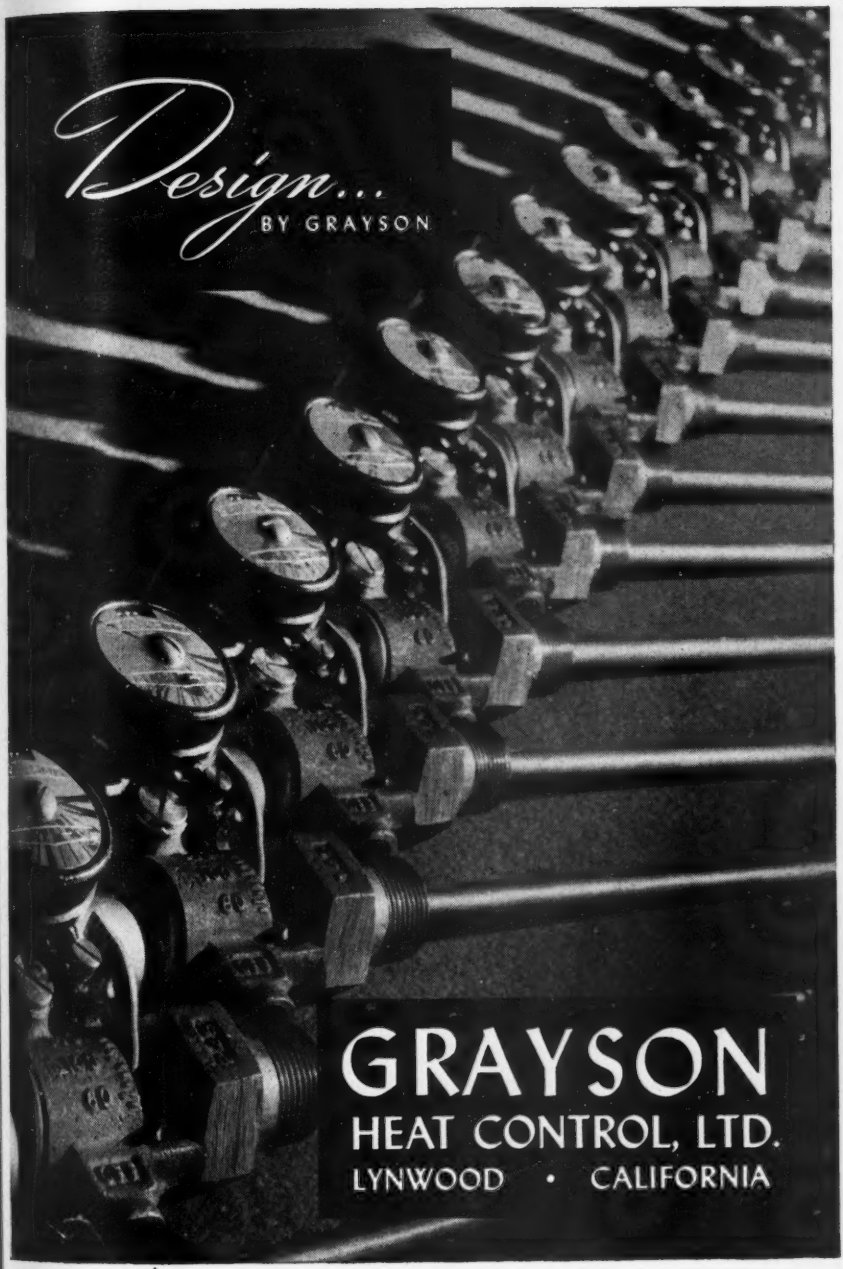
Now a mere 500,000 additional customers are insignificant to an industry that makes yearly numerical gains in normal times which exceed this, but the poundage to be gained from them would exceed the entire amount that we have so laborously acquired over a term of years by devoting our energies almost entirely to the domestic field and picking away at commercial cooking in a half-hearted manner.

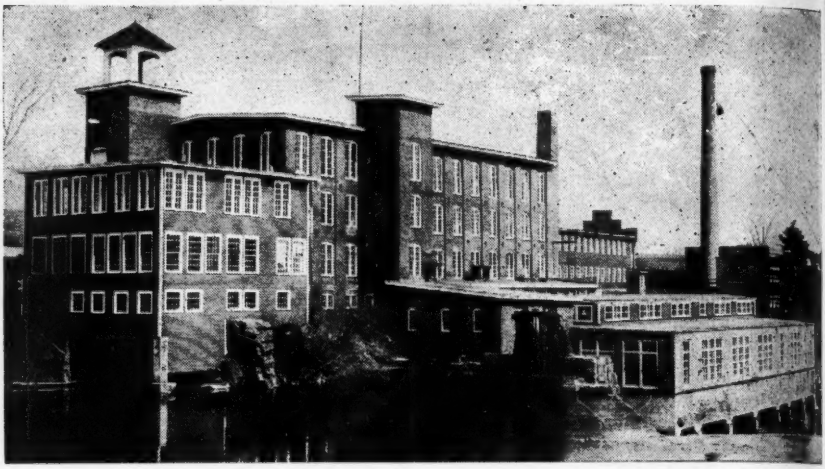
To illustrate my point, let us consider the case of Elmer Ring, of Yarmouth, Maine. Elmer is a B-P Gas dealer, located in a small town which is predominantly residential. There is no "boloney" to him, and he has come up the hard way. It was only about six years ago that he started in the gas business as a side-line to his plumbing business.

Today he does well over a quarter of a million pounds of gas business a year, and over half of this is sold to industrial users.

How could he do this in a residential town? The answer is, he

By C. C. TURNER
Special Representative
Butane-Propane News


Design...
BY GRAYSON
GRAYSON
HEAT CONTROL, LTD.
LYNWOOD • CALIFORNIA



Factory of Steel Products Corp., South Windham, Me.

didn't. He went into the adjacent towns, right under the noses of competitive gas dealers who were basking contentedly in the light of small domestic poundages, and got the business that they didn't see or were too indifferent to go after.

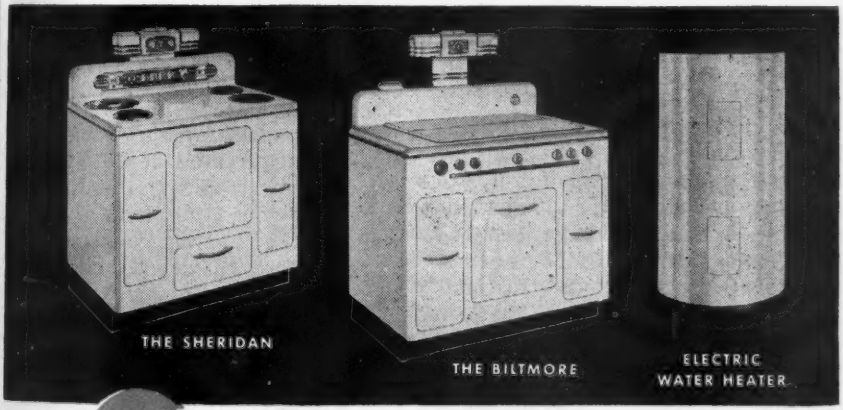
Take the case of the Steel Products Corp., of South Windham, Maine. When the start of war found the United States unprepared, we started to build ships by the thousands, then found that there was a bottleneck. There were no steel or wooden tackle blocks to be had in sufficient quantities. A group of public-spirited nephews of Uncle Sam came to the rescue. They didn't have a factory, they even had to borrow the typewriter on which the contract was written, but they had the money to back the enterprise, and more than that, they had the will to do!

An old woolen mill was purchased in South Windham. There wasn't a piece of equipment in it that could be used, and oil burning equipment for processing metal parts was not to be had. In the meantime, uncompleted ships were beginning to be tied up at American wharves for the lack of tackle blocks. Speed was imperative, and here is where Elmer Ring came in. He recognized the opportunity for B-P Gases. He knew that he could get them going more quickly with B-P Gas and equipment than would be possible in any other way. He sold them on the idea, then took the first train to Baldwin, N. Y. The Charles T. Hones people in that town swung into action, and one of their Type No. 1224 furnaces with special double doors was immediately dispatched. This was followed by another similar unit. A third one is now in transit. The Johnson Gas Appliance Co., of Cedar Rap

"ISN'T IT A HONEY..."

THE ladies who plan and prepare the household meals have been making complimentary remarks about L&H ranges for a long time. It started *about 70 years ago*, when L&H put their first *modern* range on the market. It has grown to be traditional with many families that the "new home" be equipped with L&H—"because it has all the latest improvements." Today's models, with time and temperature controls, labor-saving devices and that famous kitchen-proved cooking ease, sparkle with practical and useful features.

Appliance merchants like to be identified with merchandise that people say so many nice things about. And here's a tip for that new business you're eyeing so eagerly. It's a honey of an idea to plan for a money-making future with the long established and revered L&H line of cooking and heating appliances. The vigor of aggressive, sales-provoking merchandising and the stability of vast experience fit so perfectly into your profit-pattern. Take one moment of your time, *now*, to write for the interesting and highly profitable L&H story.



KEROGAS L&H ALCAZAR

A. J. LINDEMANN & HOVERSON CO.

MILWAUKEE 7, WISCONSIN

Manufacturers of ELECTRIC RANGES • ELECTRIC WATER HEATERS • GAS RANGES • OIL STOVES • PORTABLE OVENS • OIL HEATERS • WICKS

ids, Iowa, was also on the job through its local representatives, Utilities Distributors, Inc., and one of its No. 700 Furnaces with double doors installed.

Today the following gas appliances are in operation at the Steel Products plant.

2 No. 1224 "Buzzer" gas furnaces.

1 No. 700 Johnson gas furnace.

1 Special grease vat which is heated by a 3-burner Griswold gas plate.

2 Griswold 3-burner gas plates for the use of the help in warming their lunches.

1 Pontiac (Hotstream) 6-gallon automatic water heater.

More equipment is being added, for the company and its affiliates also manufacture bulldozers, snow plows, contractor's machinery, and barrel lifters, and a large peacetime production is being planned. Present gas consumption is in excess of 2000 pounds of propane per week, or 104,000 pounds per year. Deliveries are handled in 100-pound cylinders, 20 at each trip, and the trips average a little oftener than once a week.

The gas equipment is of particular interest because of its neatness and well planned assembly. Forty propane cylinders of 100 pounds capacity each are installed upon a sturdy platform outside of the plant, the floor level of the platform being at truck platform height.

The automatic assembly (Fig. 1) consists of two No. 2520 Bastian-Blessing automatic control manifolds and two No. 722 Fisher regulators connected in parallel. The high-pressure manifolds are constructed of 1-inch extra heavy black steel pipe with ¾-inch x ¼-inch bushings brazed into the pipe at each cylinder connection outlet. These manifolds are bent at the corners and solid welded at the open ends in order to avoid the use of pipe fittings and the possibility of leaks.

Forty special, long pigtails are used, with a ¼-inch brass male pipe connection silver soldered to one end of each pigtail and a standard POL connection to the other. The ¼-inch brass male pipe connections are brazed into the ¾-inch x ¼-inch bushings in the manifolds.

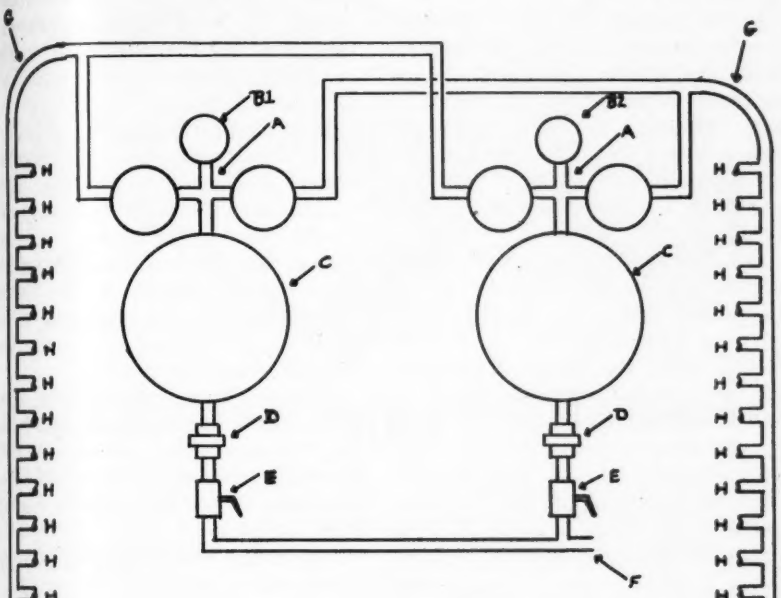
Every precaution has been taken to eliminate all possible chances of leaks. Connections from the automatic control manifolds to the high pressure manifolds are by the same type of pigtails as used elsewhere on the installation.

On the outlet side of each No. 722 Fisher regulator is a ¾-inch ground-joint pipe union beneath which is a standard gas cock. This assembly makes possible the quick removal of either side of the control equipment for servicing.

You will probably ask, "Why two pressure indicators (B1 and B2 in Fig. 1) when one would do as well?" The answer is that one gauge is located directly above the automatic control manifolds for the convenience of the service man when he is changing cylinders. The other gauge is located near an office window so that an office employe can observe it frequently and notify Mr. Ring when one side of the gas system is exhausted.

The main gas supply line leading

FIG. 1. SCHEMATIC DRAWING OF GAS EQUIPMENT ASSEMBLY, STEEL PRODUCTS CORP., SOUTH WINDHAM, MAINE



LEGEND.

A = BASTIAN-BLESSING NO. 2520 AUTOMATIC CONTROL MANIFOLDS
B1 & B2 = INDICATING GAUGES.
C = FISHER NO. 722 REGULATORS
D = ¾" GROUND JOINT UNIONS
E = GAS COCKS
F = 1½" GAS PIPE LINE TO APPLIANCES
G = HIGH PRESSURE MANIFOLD OF ¾" EXTRA HEAVY STEEL PIPE.
H = SPECIAL PIGTAILS, EXTRA LONG, ⅛" MALE PIPE CONNECTION ON MANIFOLD END, P.O.L. CONNECTION ON CYLINDER END

from the equipment assembly is of 1 ½-inch black steel pipe. Branch lines to the various pieces of equipment are of smaller sizes of pipe or of copper tubing. Shut-off cocks are provided in each appliance line so that the appliance may be removed without shutting down the entire system. All pipes and tubing are rigidly fastened to the wall by

plenty of supports with a few thrown in for good measure. The whole job is not only a credit to Mr. Ring, but to the entire B-P Gas industry.

At the present time the furnaces are over-gassed in order to keep up with production schedules. There are four atmospheric burners in each "Buzzer" furnace, and each burner has a No. 49 MTD orifice which passes about 38,614 Btu per burner or 154,456 Btu per furnace per hour.

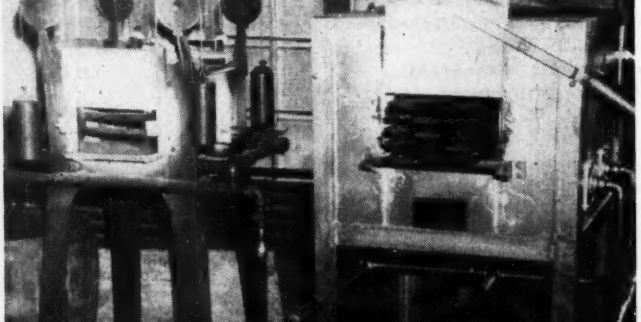
The Johnson furnace has six atmospheric burners, each of which is spudded with a No. 54 MTD orifice. Its consumption is about 131,598 Btu. per hour. This furnace is mounted on skids, for it is moved between the machine shop and the forging room as the occasion requires.

The over-gassing of the furnaces results in a light scaling of the work, which is caused by an imperfect fuel mixture. The scale, however, is but slight, is not as hard as the scale produced by oil furnaces, and is not objectionable. This condition will be eliminated when the third Buzzer furnace is installed, for then each furnace can be slowed down to its normal rate of production.

The flexibility of gas furnaces is well illustrated by the products which flow from this plant. Small tackle blocks which you may hold in the palm of your hand are produced. Large blocks, weighing 2180 pounds, equipped with Timken roller bearings and having a load capacity of 50 tons, also come from the same assembly lines.

The working temperature of the steel parts as they are shaped in the presses must be about 1600° F. The distribution of heat throughout the furnaces is remarkably uniform.

From the standpoint of manage-



▲
Industrial furnaces installed in Main manufacturing plant.
▼

Sit right down and write yourself a memo • • •

YES, SIR, *now* is the time to look into the TEMCO set-up—what's behind it—what's ahead of it . . . if you want to make money in the heating business after the war.

The Tennessee Enamel Manufacturing Company is all set to go with a *new* product—The TEMCO Gas FLOOR FURNACE—developed before the war, then re-engineered and improved during the past three years when we couldn't make 'em.

The product is *ready* . . . for a waiting market . . . and so is a rip-snortin' sales campaign. This is a package of selling tools—using every form of advertising and sales promotion—ready to go to town for TEMCO dealers.

Quick Facts about the new TEMCO Gas FLOOR FURNACE

Re-engineered, to include new features developed in wartime experimentation.

One of the FIRST to gain A.G.A. APPROVAL under new and stricter specifications.

Burns all Fuel Gases—natural, manufactured and L-P (Liquid Petroleum) with equal efficiency.

Fully Automatic—Minneapolis-Honeywell thermostatic controls, optional.

100% Safe—fully guarded by safety devices built in and included in selling price.

Has the new "WHISPER-QUIET BURNER"—Your assurance of silent flame performance.

Easy to Install.

OBEY THAT IMPULSE!

If this is interesting to *you*—don't waste a day in getting complete information! Write us for the name of the nearest TEMCO distributor, and he'll give you the whole picture . . . of the huge postwar home heating market . . . and of your opportunity to cut yourself a thick slice of profits.

TEMCO also manufactures a complete line of SPACE HEATERS, *designed especially for use with Liquefied Petroleum Gases.*

Tennessee Enamel Mfg. Co. • Nashville 9, Tenn.

TEMCO
FLOOR FURNACES
"The Biggest Little Thing in Home Heating"

TABLE 1. COMPARATIVE DATA ON OBTAINING A VOLUME OF 1040 CYLINDERS OF BUSINESS THROUGH 520 CUSTOMERS AND OBTAINING THE SAME VOLUME OF BUSINESS FROM ONE INDUSTRIAL ACCOUNT

1040 Cylinders Per Year Through 520 Accounts		*1040 Cylinders Per Year Through One Account*	
Investment		**Investment**	
1040 connected cylinders	$10,400.00	40 connected cylinders	$400.00
104 "float" cylinders	1,040.00	20 "float" cylinders	200.00
520 regulating equipments	6,240.00	2 regulating equipments	50.00
		40 special pigtails	80.00
		Other special equipment	100.00
Total	$17,680.00	Total	$830.00
6% on invested capital	$ 1,060.80	6% on invested capital	$ 49.80
10% yearly depreciation	1,768.00	10% yearly depreciation	83.00
Net yearly investment cost	$ 2,828.80	Net yearly investment cost	$132.80
Delivery Expense		**Delivery Expense**	
520 man hours per year	$ 520.00	156 man hours per year	$156.00
5200 miles transportation (5 miles per cylinder)	520.00	1560 miles transportation (30 miles per delivery trip)	156.00
Total	$ 1,040.00	Total	$312.00
Service and Inspection		**Service and Inspection**	
Estimated 50 calls @ $2	$ 100.00	Estimated 12 calls @ $2	$ 24.00
Bookkeeping		**Bookkeeping**	
1040 entries @ 10c	$ 104.00	52 entries @ 10c	$ 5.20
Summary		**Summary**	
Yearly investment cost	$ 2,828.80	Yearly investment cost	$132.80
Yearly delivery expense	1,040.00	Yearly delivery expense	312.00
Yearly service expense	100.00	Yearly service expense	24.00
Yearly bookkeeping expense	104.00	Yearly bookkeeping expense	5.20
	$ 4,072.80		$474.00

NOTE: Many items which it is impossible to distribute accurately have been omitted. As an example, "advertising" might play a large part with 1040 retail customers but not with a single industrial account. On the other hand, such items as "entertainment" might have much to do with holding an industrial account, but practically no effect upon retail accounts.

ment, the performance of the gas equipment has been eminently satisfactory. The furnaces do not require as frequent re-lining of the retorts as do oil furnaces. For each unit of work produced they do not require as much space.

They do not need a lot of auxiliary equipment such as blowers or air compressors. They are as near fool-proof as possible, and less apt to turn out faulty work due to the human equation. Heat levels can be more accurately controlled, and production schedules better timed because it is possible to accurately predict just how long it will take the gas furnace to heat an object of known weight to a desired temperature.

Let us consider the economics of such an installation from the dealer's viewpoint. To acquire the same yearly poundage would require the servicing of 1040 of the two-bottle a-year type of customers which fill B-P Gas distributors' books. Too many dealers just go after the cooking load and forget about water heaters, refrigerators, and

space heaters; but that is another story.

To service 1040 customers such as those mentioned would require an investment of $17,680 as against $830 for a single 1040 bottle account. For the purpose of illustration let us assume a 12-cent re-sale price for small users and a 6-cent re-sale price for large industrial accounts. Gross income from 1040 two-bottle-per-year users would be $12,480 and from one industrial account on the same poundage, $6,240.

The entire gross income from the small users would be consumed for over one year and five months in paying off the equipment investment made in them. The entire gross income from the one industrial account would pay off the investment in one month and 17 days!

Table 1 is based upon assumed figures, but with any group of selected figures the percentage results would be the same, and from it we can gather the following:

To gain an equal volume of business from average retail customers:

21.2 times as much capital investment would be required.

33 times as much delivery expense would be incurred.

4.1 times as many service calls would have to be made.

20 times as much bookkeeping would be necessary.

Think it over. Countless examples such as this are reason enough for me to contend that the real future for B-P Gas merchandisers lies in the commercial and industrial field. I do not mean to disparage the domestic field by which our industry has climbed to its present position of importance, but a new world lies ahead of us which is even more inviting, and a sure way of entry to it is by means of the demand for torches and furnaces, as you will learn from the chapters which are to come!

Monticello, N. Y., Company Changes Firm's Name

The Mankes Gas Service Co. will henceforth be known as the Monticello Sungas Distributors Co. at their present location, 227 Broadway, Monticello, N. Y.

This company has served bottled gas throughout Sullivan county since 1933, and in addition to the gas equipment now handled, they plan to distribute, feature and install a complete line of gas and electrical major appliances throughout the area covered from their plant.

Purchasing will be handled by Irving Fishman who has been in the housewares field in New York City for more than 25 years.

● In the July issue of Butane-Propane News appeared a highly informative article on tank truck operation by Col. Geo. A. Burrell, Atlantic States Gas Co., New York.

For illustrative purposes and to show certain unloading operations, two miscellaneous photographs, which we had on hand, were used. These were taken several years ago and do not include many of the safety features embodied on present trucks, so Col. Burrell wishes this fact understood by those who have already read the article and those who preserve it for future reference.

In our June issue there was presented one of the company's modern trucks, showing important safety improvements over the older ones.—Editor.

A portion of the outdoor growing area which is used all-year-around after turkeys leave their brooders on a California desert ranch.

Brooding Hazards Reduced By B-P Gas Vaporizer

By R. E. MEEDER

Manager, Carburetion Equipment Division, American Liquid Gas Corp., Los Angeles

EVERY butane-propane dealer knows that customer satisfaction is necessary for a successful business—"the customer is always right"—but, when the customer calls at 2 a.m. to inform you that there isn't any gas going to his brooder burners and he has 18,000 young turkeys that are about to freeze, even after you have filled his tank the previous day—then you begin to question the old adage.

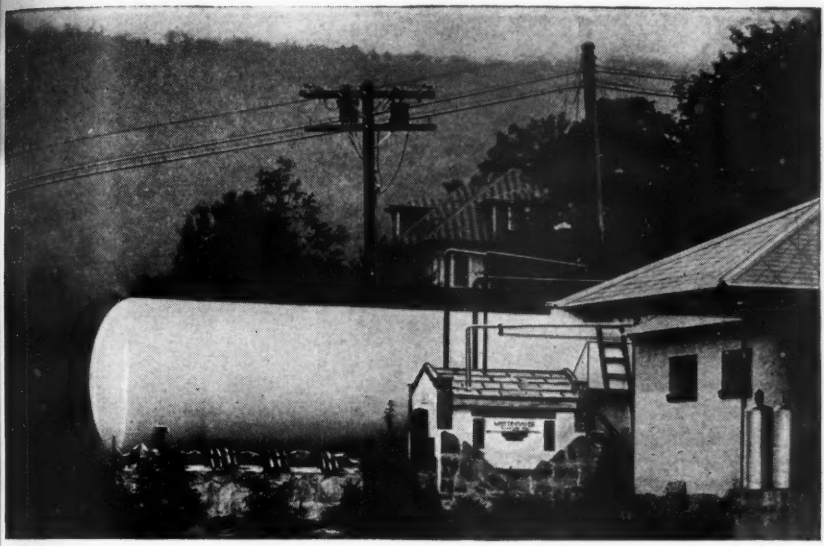
However, the customer still may be right, because his heavy fuel demand has reduced tank pressure so that there is not sufficient pressure to supply the burners.

Many butane-propane dealers will immediately think that the customer needs a larger fuel supply which should provide pressure over a longer period, but Clarence Hernam, of Antelope Liquid Gas Co., Lancaster, Calif., believes that even a larger propane tank will only prolong this condition and is not the ultimate answer. In fact, he proved it to himself and his customers by installing a direct-fired vaporizer for maintaining constant gas pressure and Btu heating value to appliances.

Mr. Hernam is very conscious of the responsibility attached to serving his brooder accounts. He considers them valuable as an all-year-round load and profitable to serve when ample butane-propane gas storage is installed with a vaporator to insure constant gas supply to the brooders.

It is frequently found that even

ample capacity . . with a STRENGTH to match

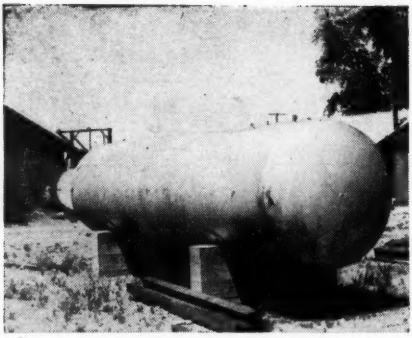


A.C.F. ellipsoidal-headed tanks for storing propane or propane-butane mixtures are available in any capacity up to 30,000 gallons. They are fusion-welded by the same highly skilled workmen who build the tough tanks for tank cars the railroads require. You obtain an unusually strong, long-life storage tank—built with steel having a minimum tensile strength of 70,000 lbs. per square inch and grit blasted to assure better paint protection and anti-corrosion qualities. Let us know your requirements.

Whatever A.C.F. Builds — It Is Known to Build Well!

AMERICAN CAR AND FOUNDRY COMPANY

STORAGE TANK DEPARTMENT • 30 Church Street, New York 8, N. Y.



The 3000-gal. storage tank which supplies fuel for the Firsick brooders.

with propane in the California climate the heavy loads would indicate the necessity of having additional vaporization. Temperature ranges around Lancaster are: Winter, 10° to 80° over a five-month period and 60° to 120° during the balance of the year. Mr. Hernam says that his customers are in danger when their fuel tanks are below 30% full on a cold morning, but when a vaporator is used, the entire supply of fuel can be used regardless of weather or load conditions.

The Lancaster district is developing fast to become one of the country's largest turkey and chicken raising areas, with particular emphasis on turkeys. Considerable information on detailed cost and how to sell butane-propane gas in place of oil and electricity to brooder owners, recently printed in Butane-Propane News*, Mr. Hernam says, has been very helpful, but profitably servicing these accounts requires thoughtful planning and adequate equipment.

The importance of adequate fuel supply and equipment to permit good service can be ascertained from several of Mr. Hernam's accounts. Robert Jones, located near Lancaster, has been operating 20 brooders during the past winter, 10 of which have been on butane-propane gas fuel, in which he formerly used oil, and the other 10 using oil, but during this next winter all will be operating on butane-propane gas. At the present time, he has a 500-gallon storage tank, but this will be increased to 1,000 gallons when the additional brooders are added.

The main feature which Mr. Jones emphasizes in his discussions about his brooder heating is the surety of the butane-propane gas-fired system. He feels that he always has gas when he needs it and is not required to be constantly servicing his burners. He uses an "Algas Vaporator" and says that the vaporator affords him a guarantee of gas in the early mornings when he prefers to sleep rather than 'phone Mr. Hernam that he needs more gas pressure.

On his oil-fired brooders, he has noted that high winds cause considerable difficulty and that they are very susceptible to drafts, while the gas-fired brooders did not give him this trouble.

Mr. Hernam expects to have 20 gas-fired brooders operating this coming winter for Mr. Jones, which will naturally double his business with this customer. Recently Mr. Jones ran 4500 turkey polts through his brooders and now has 4300

* "Commercial and Industrial Applications," by C. C. Turner, February to May, 1945, issues.

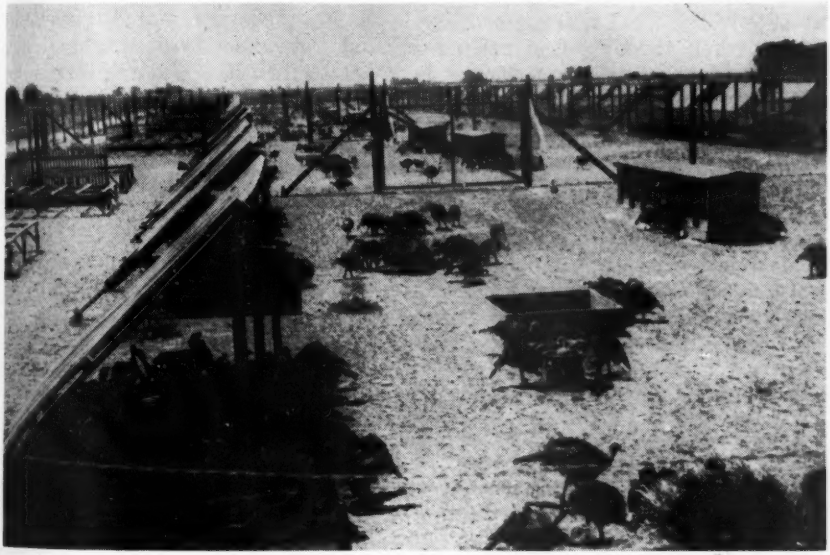
birds in his outdoor growing yard. He is enthusiastic about the reduced cost of operating the gas-fired brooders as against oil in addition to safety and cleanliness of the operation.

There is another brooder installation in the same vicinity that Mr. Hernam points to proudly, which has been using butane-propane fuel 100% throughout. It is owned by John Firsick, who raised 20,000 turkeys and 40,000 chickens last year. This is a rather large installation and is operated with a minimum of manpower. Mr. Firsick has a 3000-gallon storage tank and an Algas vaporator to assure him adequate pressure and supply.

It is interesting to note the specifications of the brooder setup which Mr. Firsick operates. He has three brooder houses, each of which are 20 feet wide by 200 feet long. The houses are divided into 10 compartments, with each compartment 20 feet by 20 feet. The vaporizer is installed near the end of one building from which the gas is piped into all three houses.

How Pipes Are Installed

The piping is as follows: The liquid line is run from the storage tank to the vaporator, a distance of 75 feet. From the vaporator a 1½-inch line is run as a header to the three houses. The line through each house is then reduced to 1¼-inch size. A pressure test was taken under full load at the end of the line, and it indicated that there was a drop of less than 1 inch water column under the pressure at the regulator, which was 11½ inches water column. The total con-



Scene on the Robt. Jones ranch. These 4300 turkeys are 13 weeks old.

At the J. Firsick ranch B-P Gas is supplied through overhead pipe system. Interior view of one brooder house.

sumption potential of each brooder is 20,000 Btu, or a total of 200,000 Btu per house.

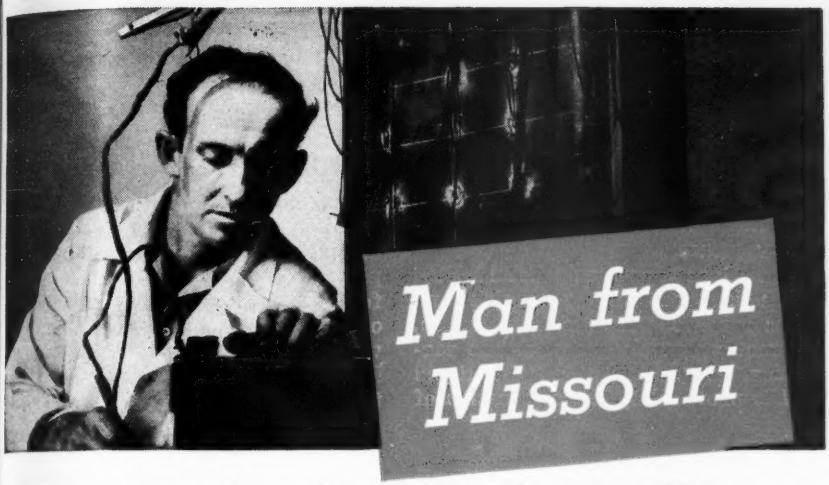
From the above, it is noted that adequate sized pipe lines are necessary to insure sufficient pressure to supply the most distant brooder. Thus, when three houses are running at full gas demand, there is ample capacity in the vaporator to serve all brooders, since the vaporator will supply at least one million Btu per hour.

Mr. Firsick puts 300 turkey polts in each brooder and 600 chicks under each brooder. It should be pointed out that the butane-propane gas-fired brooders have provided an easier temperature regulation than was possible by electricity, according to Mr. Firsick, and radiation from the gas burners assists in keeping the room warmer than with electricity.

Mr. Firsick is quite emphatic about the excessive servicing required for oil-fired burners, which naturally makes them more costly to operate. Also, he never was successful in overcoming downdrafts, which would cause the flues to collect soot and the oil burners were always being filled with sludge.

Mr. Hernam adopted the installation suggestion noted previously and recommends it highly. This was to install a vapor line from the tank to the header system, then running through the brooder houses with a 2-inch difference in pressure. In this way, the usual load

Vaporizer set on gravel base near end of brooder house on the Firsick turkey ranch.



Man from Missouri

THIS IS A PICTURE of a man being skeptical — in a practical way. He's one of the staff of expert technicians at the Rheem laboratory in Pasadena, California. And the thing he's looking so "show me" about is the firebox from a Rheem floor furnace.

Blanketing the whole surface of the firebox in this test are individual thermocouples which register spot temperatures on the instrument the technician is reading. If any spot on the firebox shows a temperature appreciably lower than the maximum allowable—the unit is rejected. Every Rheem gas appliance earns the AGA Blue Star of approval.

Equally important at the Pasadena laboratory is the research that unceasingly looks for ways of *improving* Rheem products . . . for refinements that will make living still more comfortable for users of Rheem appliances.

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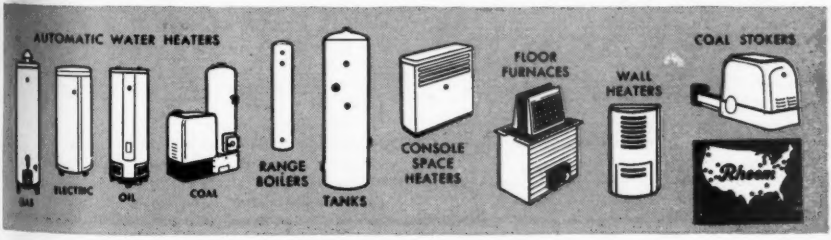

goes through the vaporator and in case of any possible failure of the vaporator, the tank vapor regulator, which was set at 9½ inches, would supply fuel to the brooders until such time as repair work would be completed on the vaporator, as noted, before the regulator on the vaporator was set at 11½ inches water column.

The Algas vaporator (Model 1300), which is used on the Firsick and Jones ranches, combines vaporization, automatic controls and pressure regulation. Vaporization of the liquid fuel is provided by the application of heat which is transmitted directly through the shell of the sphere. (See Fig. 1.) This heat is supplied by a ring-type burner which is placed at a proper distance below center of the sphere.

Designed for Automatic Control

The controls, which are incorporated in the vaporator for safe and trouble-free service, are designed to provide complete automatic control for both fuel inlet and main burner operation. The liquid fuel enters the vaporator sphere which contains a hollow steel float. This float is fastened to a fuel inlet control valve and

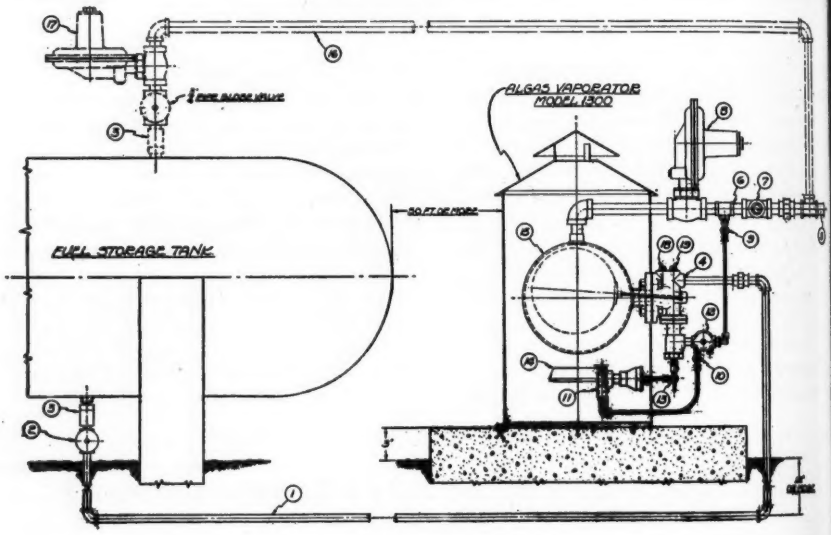

FIG. 1

1. Liquid line from tank to vaporator.
2. Liquid supply valve.
3. Excess flow check valve.
4. Control valve assembly—liquid inlet connection to vaporator.
5. Low pressure gas line to applications.
6. Low pressure outlet ¾-in. pipe from vaporator.
7. ¾-in. low pressure gas cock or valve.
8. Low pressure gas line regulator.
9. Pilot and burner feed tube valve.
10. Pilot burner shutoff valve.
11. Pilot generator.
12. 100% safety thermo shutoff valve.
13. Main burner shutoff valve.
14. Main burner.
15. Vaporizing sphere.
16. Low pressure gas line from tank.
17. Low pressure regulator from tank vapor phase.
18. Internal relief valve plug.
19. Internal fuse valve plug.

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TANKS BY BANKS

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TABLE 1. APPROXIMATE TANK PRESSURES AT SELECTED TEMPERATURES OF BUTANE-PROPANE MIXTURES*

Atmospheric Temperature	*Butane-Propane 50%-50%*	*Butane-Propane 70%-30%*	*Butane-Propane 90%-10%*	*Butane-Propane 95%-5%*
60° F.	55 lb.	37 lb.	21 lb.	16 lb.
50° F.	42 lb.	28 lb.	14 lb.	10.4 lb.
40° F.	33 lb.	21 lb.	9 lb.	6 lb.
30° F.	25.7 lb.	15.3 lb.	5 lb.	2.3 lb.
20° F.	19 lb.	14 lb.	1.6 lb.	—.5 lb.

* Calculations based on data published in "Handbook Butane-Propane Gases."

also actuates main burner control valve, both of which are a part of the main control valve assembly.

As the liquid fuel rises within the sphere, it will contact the float and eventually raise it. The raising of the float will close the liquid fuel inlet valve when the sphere is approximately one-third filled. This is an anti-flood valve. Since the float closed the inlet valve, it is not possible for more liquid to enter the sphere until sufficient vaporization takes place so that the float is lowered and opens the inlet valve. This anti-flood valve prevents liquid fuel from entering the gas lines to the appliances.

The main burner control valve will be permitted to open as the liquid raises the float; however, it is so designed that the gas will not flow to the main burner until a sufficient gas demand has lowered the pressure within the sphere to a predetermined setting.

The main burner control valve will then open, allowing gas to flow to burner, which is ignited by the pilot flame. As the pressure is raised, due to transfer of heat from the main burner to the liquid fuel inside of sphere, the pressure will be raised, and when the pressure reaches the predetermined setting, it will close off flow of gas to the main burner.

There is an overheat fuse valve included in the Algas control valve assembly. If, for any reason, the vaporator were to become overheated, the fuse will melt and close off any further supply of liquid fuel from the storage tank and will cause the unit to be inoperative.

It is absolutely imperative that several pounds of pressure be maintained in the storage tank in order to force the fuel through the liquid line to the vaporator. It must be recognized that normal butane at 32°F. has zero pressure and propane at —44°F. is at zero pressure. A 50 per cent mixture of these fuels has 19 pound pressure as shown in Table 1.

Once the fuel gets to the vaporator, it will be vaporized and gas released to the appliances at a constant pressure. If a vaporizer is used, as soon as demand increases and temperature drops, there will be no difficulty in keeping sufficient pressure in the storage tank to force the fuel to the vaporator.

Brooder accounts is only one type of customer upon which the butane-propane dealer can use the Algas vaporator to great advantage. Among the many are nut dryers, dehydrators, rice dryers, cottonseed sterilizers, auto courts, homes and many industrial installations which already have found the advantages of using a vaporizing method to develop the constant Btu heat value to the appliances.

QUIZ — Pipe Lines

• *This department is a monthly feature to stimulate thought and to give operators basic industry facts. Clip out for your notebook or file in a standard, 3-ring, loose-leaf binder. Sources of information: The Bottled Gas Manual, Handbook Butane-Propane Gases.*

Questions — Answers

1

Why is the gas pressure at the far end of a pipe line lower than the pressure of the gas entering the line?

When gas flows through a pipe line it rubs against the inside walls of the pipe. Some of the pressure available at the start is used up overcoming the friction between the gas and the walls of the pipe.

2

What is the maximum allowable pressure drop between the outlet of the regulator and the inlet of the appliances in a well-designed system?

.55 in. of water pressure drop will assure satisfactory operation of appliances, including pilot lights and automatic lighters.

3

How can the required quantity of gas for a system be determined?

Add up the Btu input of all the appliances to be hooked up. Allow for additional appliances that may be reasonably expected to be installed in the future. Divide the total hourly Btu input by 2500 for propane or by 3000 for butane-propane mixes which gives the quantity in cubic feet per hour.

4

How is the proper size of pipe determined?

The correct size of pipe can be arrived at by solution of the Pole formula:

$$Q = 1350\sqrt{\frac{d^5 h}{S\,L}}$$

When Q = quantity of gas in cu. ft. per hr.
d = inside diameter of pipe in inches.
L = length of pipe in yards.
S = specific gravity of gas.
h = pressure drop in inches of water.

Solution of this formula for different quantities of propane and pipe sizes is published in tabular form on Pages 70 and 71 of The Bottled Gas Manual.

5

Will a piping system designed for propane work satisfactorily for butane mixes and vice versa?

A piping system designed for propane will handle butane or butane-propane mixes. A system sized to handle butane or butane-propane mixes and working at full capacity will be approximately 20% overloaded if a switch is made to straight propane.

6

What is the reason for this?

Propane contains fewer Btu's per cubic foot than butane. As a result, more cubic feet per hour are necessary to furnish the same heat output. Although propane gas has a lower specific gravity, which reduces the pressure drop, this is overcome by the fact that the pressure drop increases as the square of the quantity.

7

Can the tables on Page 70-71 of the Bottled Gas Manual (on "LP-Gas Pipe Lines") be used for figuring systems for butane-propane mixtures?

Yes. In a 50-50 propane-butane mix, reduce the length allowed by approximately 15%. For straight butane, 25%.

8

If service is desired at several elevations, such as the floors of a multi-story building, is it necessary to make any special provision in the installation?

Yes. If service is required on several floors, such as apartment houses, a regulator should be set in the branch line to each floor as the weight of the gas in the riser pipe has to be compensated.

9

What type of regulator should be used for this service?

In order to have a low pressure system starting from the regulator at the tank, an ounces-to-ounces regulator should be used on the branches. These regulators have a large capacity with low inlet pressure but a very small range of adjustment.

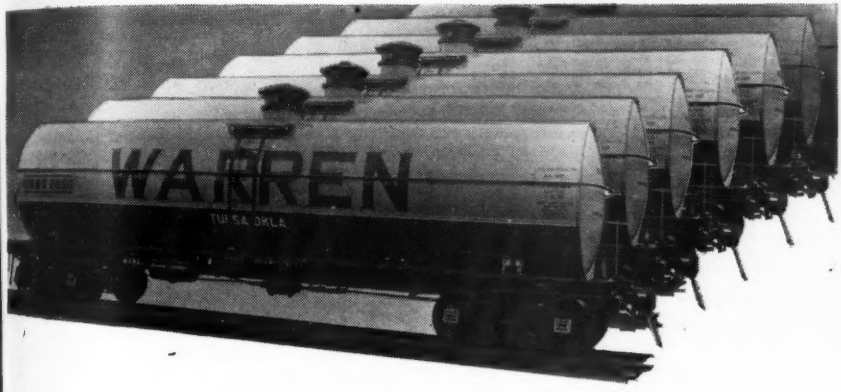
10

Why is it necessary to use such large size pipe when the orifice hole in the appliances is so small?

The length of the orifice is very short and the pressure drop across it is the total pressure of the system; therefore, it can pass a comparatively large quantity through a small hole.

SUBJECTS TO BE COVERED IN FORTHCOMING ISSUES:

● Testing for Leaks, Burner Adjustment ● Thermostats, Pilots and Pilot Controls ● Burner Design and Application ● Appliance Conversions.



60 PROPANE CARS ADDED TO WARREN'S FLEET

Warren has purchased 60 new tank cars, increasing its large fleet to expedite delivery of greater quantities of Liquefied Petroleum Gas products.

Additional production facilities for the manufacture of larger quantities of Propane will come on stream early this fall, adding materially to Warren's available supply.

WARREN PETROLEUM CORPORATION
Tulsa, Oklahoma Houston, Texas

CURRENT READING

• Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry. Those interested in reading any complete article or book should write to the publications named.

•

Neopentane in Refinery Butanes—L. C. Jones, Jr., R. A. Friedel, and G. P. Hinds, Jr. "Industrial and Engineering Chemistry," Anal. Ed., June, 1945, pp. 349-351. Qualitative study of a straight-run refinery butane stream by infrared spectrometry has established the presence of a small amount of neopentane. A spectrophotometric method is described for the quantitative analysis of the system propane, n-butane, isobutane, neopentane, and isopentane. Determinations by this method show that neopentane occurs in various Texas crudes to the extent of about 0.03% by volume. The reference spectra necessary for this analysis are included.

Alkylation: Backbone of Aviation Gasoline—W. Mendius. "National Petroleum News," June 6, 1945, pp. R-407-409. The importance of alkylate in the aviation gasoline program comes from two facts—its production is sizeable and, since it has octane ratings appreciably higher than the current standard for war-grade aviation, it is able to carry base stock considerably in excess of its own volume. Total output at present is around 130,000 b-d, of which two-thirds is from sulfuric acid type plants and one-third from hydrofluoric acid plants. A general review is given of the characteristic differences in operation involved when using the two acids, as well as some of the operating problems and the use of material.

Capacity Control for Atmospheric Cooling Towers—E. Simons. "Chemistry and Metallurgy," June, 1945, pp. 106-109. Although wartime operation generally demands the maximum capacity from water cooling towers, the author points out that some such towers are working at less than capacity owing to structural deterioration or the development of excessive organic growths. The article gives new simplified means of analyzing atmospheric towers and shows how the effect of improvements may be calculated. It also discusses the problem of organic growth control.

Fuels and Lubricants for High Speed Engines. "Diesel Power," June, 1945, pp. 690, etc. Probable post-war quality needs of diesel fuels and lubricants are appraised; wartime discoveries seen as providing new means for improving performance.

Fuels and Engines for Higher Power and Greater Efficiency—C. F. Kettering. "S.A.E. Journal," June, 1945, pp. 352-357. This paper deals with importance of fuels in connection with the future development of engines for higher power and greater efficiency. Described in this article are investigations made on the effect of molecular structure on fuel knocking characteristics. These studies have led

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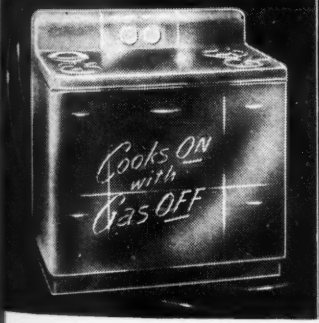

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Ruptured Pipe Lines—Preventative Maintenance and Corrective Procedures—F. B. Neptune. "Oil and Gas Journal," June 30, 1945, pp. 120, etc. A discussion of the procedures followed by Phillips Petroleum Co.'s product pipe line system.

Thermodynamic Properties of Moist Air—J. A. Goff and S. Gratch. "Heating, Piping and Air Conditioning," June, 1945, pp. 334-348. The authors present a revised table of the thermodynamic properties of moist air for the range —160°F. to +200°F. Detailed explanations showing the method of constructing the tables are presented to establish the reliability and probable permanence of the values listed.

Methods Employed to Prevent and Control Fires at Shell's Wood River Refinery—J. F. Goldsberry. "Oil and Gas Journal," June 9, 1945, pp. 83, etc.

Investigation of the Mechanism of Butane Isomerization Using Radioactive Hydrogen as a Tracer—T. M. Powell and E. B. Reid. "Journal of American Chemical Society," June, 1945, pp. 1020-1026. The results of tritium exchange between hydrogen, hydrogen chloride, and butanes during isomerization are presented. These show that exchange of tritium in hydrogen chloride to butane is large compared to exchange of tritium in hydrogen (HT) to butane. A mechanism is proposed which qualitatively explains the data. A general mechanism of hydrocarbon isomerization is presented.

Diesel and Gas Engine Fuels and Combustion—L. N. Rowley. "Power," June, 1945, pp. 79-94. This special section discusses: How engines burn fuels; Combustion chambers; Gasoline fuels; Diesel-engine fuels.

Centrifugal Pump Control—I. J. Karassik. "Power Plant Engineering," June, 1945, pp. 80-83, 124. Part 5. Protective controls; what they are, when and why used, how they operate. Check valves, protective motor controls. Automatic operation of standby boiler feed pumps. Principles and operation of pump by-passes. Automatic pump by-pass control, flow meter and thermostatic types. Other protective devices, foot valves, surge supressors, and relief valves.

The Significance of Viscosity—"Petroleum World," May, 1945, pp. 41-43. A brief discussion, in non-technical language, of the various means of measuring the viscosity of petroleum oils.

Metals for Service at Subzero Temperatures—P. B. Petty. "Chemistry and Metallurgy," June, 1945, pp. 102-103. An examination of the subzero behavior of some common metals and alloys.

Synthetics from Petroleum—B. H. Weil. "Petroleum Engineer," May, 1945, pp. 198, etc. A review of developments in this field.

Meet Savory

The Toaster That Boosts Your L.P. Load

When you sell Savory, you sell more than a toaster! When you install a Savory, you emphasize the advantages of gas for commercial cooking and directly insure your L.P. load.

Savory is the ideal toaster for outpost inns, resort hotels, roadside restaurants, and other commercial food service establishments.

Savory will provide fast, convenient toast service for your customers at maximum economy during "peak" or "off-peak" periods . . . and Savory "*Appetized*" toast is bread at its best. If you're not already a Savory distributor, drop us a line. W.P.B. regulations covering gas toasters have been revoked, and we are prepared to give you reasonably prompt delivery.

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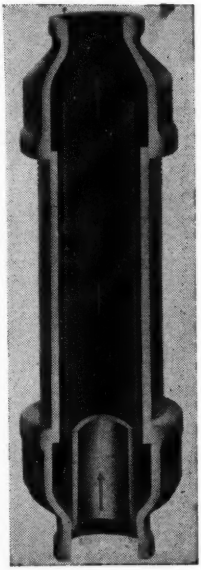
Check Valve



An innovation in check valves is announced by the Harman Equipment Co., 937 Santa Fe Ave., Los Angeles, in their new "Permatite Valve."

Designed along entirely new principles, the valve has no poppets, discs or other metal working parts. Backflow is checked by a Neoprene synthetic rubber tubing which offers positive control, as the tubing easily opens with either vacuum or pressure, permitting direct flow, and closes when the flow is stopped.

Valve installations and servicing are greatly simplified, say the manufacturers. No manholes, sleeves or extractor equipment is required where valves are buried, as the tubing is permanently tight and its opening and closing movements are such as to prevent foreign matter from fouling the valve or causing leakage.

Laboratory tests for periods exceeding 24 hours show that, immerged in water, the "permatite valve" maintains a 28-in. vacuum, and that the valve acts as a check against backflow under a static head of 29 in. without showing any evidence of leakage.

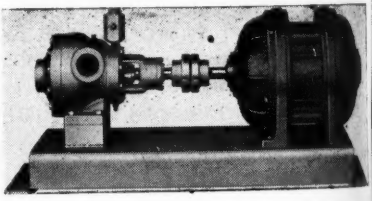
It is claimed that this valve can be successfully used with air, natural gas, any commercial liquid including all petroleum products from crude oil to liquefied petroleum gases, hot or cold water and any chemical that will not attack synthetic rubber.

The "permatite valve" may be used as a foot valve, vertical, horizontal or angle valve in any suction or discharge line. It may also be used as a mixing valve, pump priming valve or as an air compressor silencer.

Immediate deliveries can be made on valves rated at working pressures up to 125 psi, in ½-,¾- and 1-in. sizes. Other standard sizes are available. Descriptive literature will be sent on request.

B-P Gas Pump

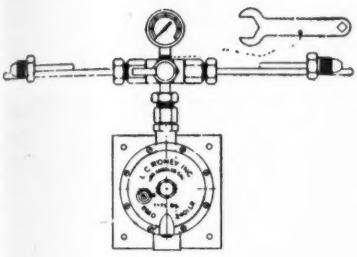
A new model pump has been added recently to the Smith Precision Products Co. (South Pasadena, Calif.) line of butane-propane pumps, according to R. Stanley Smith, manager. This pump is known as Model M-1044 and has a capacity of 20 GPM when direct driven by a 1½ hp., explosion-proof, 1800 RPM, electric motor. It is designed to handle bottling or transfer



work for small plants where this limited capacity is sufficient.

The design of this new model follows the general line of butane and propane pumps manufactured by Smith Precision Products Co. and includes their special fluid-sealed packing box and balanced gear type construction.

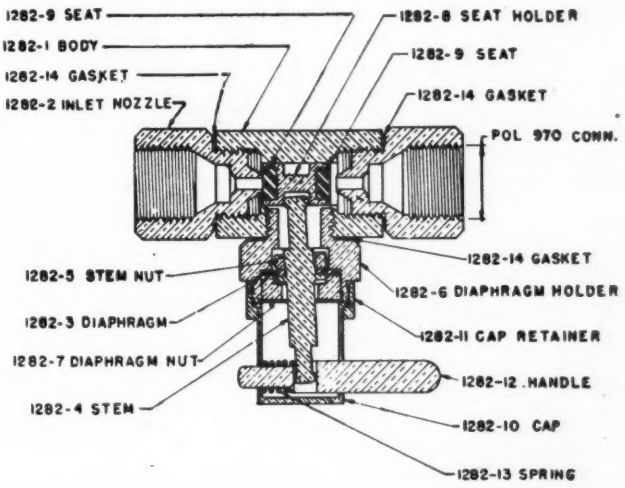
Roney Change-Over Cylinder Manifold



GAINS CUSTOMERS AND KEEPS THEM SATISFIED

The R-1282 Change-Over Cylinder Manifold enables customer to change from empty to full cylinder with simple half turn of the hand lever. Used in set-up such as the one shown at left, it is fast, safe and efficient.

EMPTY to FULL with SAFETY and SPEED



IMPORTANT CONSTRUCTION FACTS

This simple and convenient manifold enables the customer to change from empty to full cylinder quickly and with complete safety. A turn of the lever automatically opens full cylinder while closing empty. The operating stem is positively sealed against leakage by neoprene diaphragm and because of spring action, which controls the pressure exerted against the seat, no damage can occur through careless or improper operation. Position of lever indicates cylinder in use. Seats may be cleaned or replaced in the field without special tools.

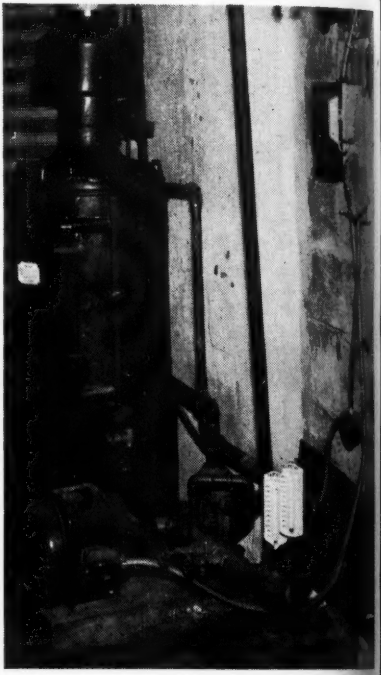
L.C. RONEY INC.
1740-44 W. 59th ST. · LOS ANGELES, CALIF.

No Snow Shoveling Needed With Water Heater On Job

AN important and unique application of a water heater has been found by Joseph C. Keaney, of Pittsburgh, a ceramic engineer and manufacturer's representative.

It is the successful removal of snow by a Ruud continuous flow water heater from Mr. Keaney's driveway, where snow and ice have been frequently occurring hazards in past years.

Beneath the 12-inch driveway ribbons are double lengths of wrought iron pipe through which flows an anti-freeze solution. This is motor-driven through the Ruud continuous flow water heater which automatically maintains an upper-bracket temperature, taking it in from one outside trip at 100 degrees and sending it back at 190 degrees.



This Ruud continuous flow water heater heats the anti-freeze solution for auto driveway.

Through wrought iron pipes laid below the surface of this driveway circulates an anti-freeze solution that keeps snow melted for easy access to private residence.

So effective is the system that it has melted a half-inch of ice in 20 minutes and a 14-inch snowfall in about an hour.

In the 1944-45 winter when Pittsburgh had it's heaviest snow fall in many years, the Keaney invention

Just a few of many improved parts Weatherhead is prepared to make in quantity at competitive prices for the LP Gas industry. For literature or information, phone or write any Weatherhead branch office.

Look Ahead with Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO

Branch Offices: NEW YORK • PHILADELPHIA • DETROIT
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Improved FLARE FITTINGS

functioned perfectly and economically.

In addition to melting the snow, the underground heat lines also evaporate the resulting water.

Engineers of A. M. Byers Co., Pittsburgh, who have studied the layout suggest that a similar arrangement of coils could readily operate from a hot water boiler. The comparatively short periods that snow-melting lines function need not interfere with normal residence heating requirements, they state, after which the water in the lines could be drained off.

Radiant heating by piped hot water is getting top promotion these days, and the big goal is the home-heating market. In his drive-way installation, Engineer Kearney is ahead of the field for his Ruud automatic snow-melting system has been in successful operation since 1940.

Southeastern Natural Builds 30,000-Gal. Fort Myers Plant

The completion of a new propane bulk plant at Fort Myers, Fla., has been announced by Southeastern Natural Gas Corp., Miami, Fla.

With a storage capacity of 30,000 gallons propane, this new Fort Myers plant is No. 5 in the company's chain of bulk stations located throughout Florida. It was built by the Chicago Bridge and Iron Co. out of its Birmingham works.

The various plants are established at Miami, North Miami Beach, Tampa and Stuart. The total net capacity of the five plants is 150,000 gals. At Tampa the first bulk storage was erected in 1927, and was then a pioneering venture.

Porter Bartleson, formerly connected with the water and gas department of the City of Fort Myers, will manage the new station. Other company officers are: F. W. Warner Jr., president; R. L. Christian, vice president in charge of operations; L. B. Stokesberry, secretary and sales manager; J. E. Price, treasurer and general manager.

The company is distributor for the Phillips Petroleum Co. in the Florida territory it serves.

Propane bulk plant of the Southeastern Natural Gas Corp., Fort Myers, Fla.

Butane Trucks Get Rigid Test

By PAUL LADY

LIQUEFIED PETROLEUM GAS is today recognized by everyone acquainted with it as a superior type of motor fuel, capable of producing power at greatly reduced costs and adding markedly to the life of the engine.

In coming months BUTANE-PROPANE *News* will present "Case Histories" of truck fleets that have been operating on butane or propane. It will be the desire of the publishers to present facts and figures helpful to those wanting to learn more about this modern motor fuel. Questions or suggestions from the readers will be appreciated and will help in the presentation of this series.—Editor.

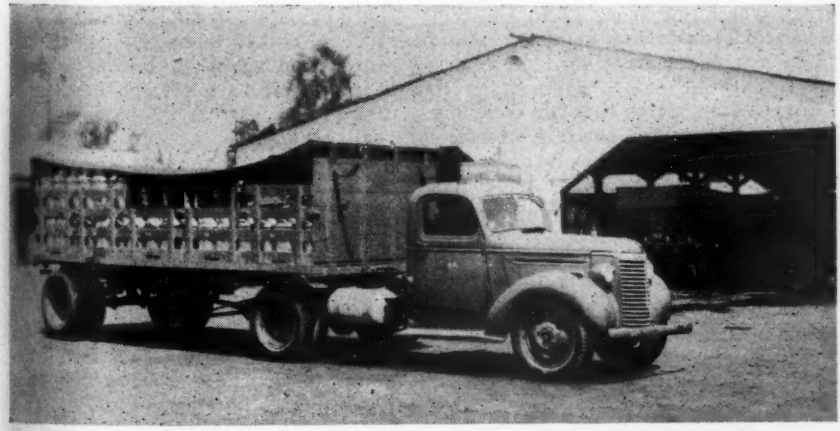
Case History No. 3

Company: California Milk Transport, 825 Compton Blvd., Clearwater, Calif.

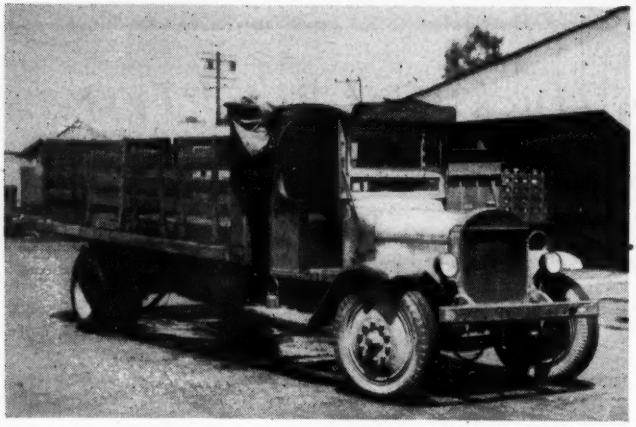
Fleet History: Today this company has 30 trucks operating on butane. This is only part of fleet. The first installation of butane carburetion equipment was made in 1937.

Reviewing the experience of his company with butane, L. C. Clifton, superintendent, states that butane operated trucks were added to their fleet until 1941. At that time they found it so difficult to get the necessary conversion parts that they decided to stop converting motors until they could again get what they considered suitable equipment.

It has been this company's policy to make conversion on heavy duty trucks only. A few lighter models



Converted in 1940 this 1½ ton Chevrolet "semi" traveled over 200,000 miles with original engine. Similar trucks, operating on gasoline, had rebuilt or new engines at 100,000 miles.



This AB Mack was one of the first to be converted to use butane. It has gone well over 300,000 miles and is still in fair operating condition.

have been converted for test purposes. This policy stems from a belief that lighter trucks can not stand up under the heavy loads transported if additional power is added to the engines through the use of butane.

The trucks are used to haul milk from dairies throughout southern California to metropolitan centers. They work every day in the year. A loaded truck and trailer carries a gross weight of from 17 to 20 tons. Severe schedules are maintained and these are necessarily hard on equipment.

Mr. Clifton states that his company hopes to use butane entirely on heavy duty equipment. For his large trucks he plans to use engines with 450 cu. in. piston displacement and up.

Equipment: 30 trucks on butane. This includes AB Macks with EH motors, EH Macks, C-40's and D-50 Internationals, and one Chevrolet (1½ ton semi).

Carburetion Equipment: Carburetion equipment includes Century-Model F converter unit, for use with motors up to 200 h.p.; Roadmaster R-300 converter unit, for use with motors up to 160 hp.

Conversion Facts: On the average truck it takes two men about one day to make a complete conversion from gasoline to butane. The cost for this operation in 1941 was $272. No definite figures are available for today's cost but it should be about the same. Two 50-gal. tanks are used on most trucks.

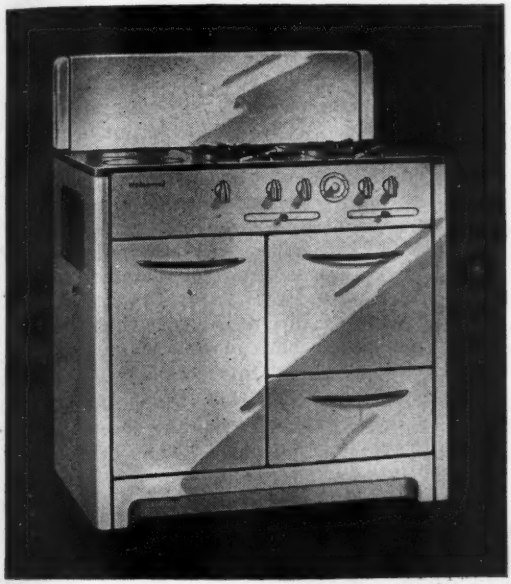
Tackometers, which record the RPM of the motor, are used on all the long haul trucks. Drivers are instructed to use them. Due to the absence of ping, when butane is used, it is difficult to tell when a motor is lugging unless such equipment is available.

New intake manifolds are used on every converted engine. From the standpoint of this company, this practice is most important. Mr. Clifton states that his company was ready to stop using butane on large Macks and Internationals before new manifolds were installed. At that time they decided to try manifolds especially designed for trucks operating on butane.

The manifold chosen for the test was a "Thickstun," manufactured by the Electric & Carburetor Engineering Co., of Los Angeles. The first was

WEDGEWOOD

now geared to full peacetime production



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Complete with Oven Heat Control

MODERN PREFER GAS

● **GOOD NEWS to thousands of women who long to own a WEDGEWOOD, the gas range they know as the ultimate in Quality. And for users of LP Gas, the well-known economy of the WEDGEWOOD makes this famous high quality gas range doubly attractive.**

WEDGEWOOD THE MODERN GAS RANGE

JAMES GRAHAM MANUFACTURING CO.

LOS ANGELES ★ SAN FRANCISCO ★ NEWARK, CALIFORNIA ★ PORTLAND, OREGON

installed on an International DR-50. Good results were immediately noticeable. Power was greatly increased; operation was smoother and more mileage obtained.

Another important practice is that of cooling manifolds. (The cooler the butane gas, the more expansion realized when fired.) It is good practice to block off entirely the hot air passage between exhaust and intake manifolds.

The compression ratio is usually changed by use of a specially designed head, or high domed pistons.

Fuel Consumption: This company has found that mileage is about the same on butane as on gasoline. However, the large increase in power results in a definite saving on this type hauling.

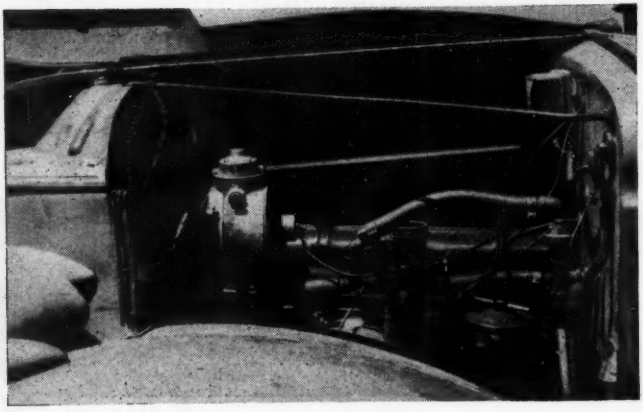
Power: There is a marked increase in power when an engine is converted from gasoline to butane. Trucks operate at from one-half to one gear higher at all times. Drivers also agree that there is an increase in power and are enthusiastic about the smoothness of operation with butane.

Oil: The policy of this company is to change oil on butane operated trucks every 5000 miles. A good filter is used. It is found that oil is still in good condition when removed. No. 30 weight oil is used most of the time.

Operating Facts: After nearly 10 years of operation on butane, this company has definitely established the fact that trucks operate more economically on butane from the standpoint of fuel and oil . There is a very great difference in comparisons of upkeep and overhaul costs over gasoline. The trucks run three times longer on butane before overhaul than on gasoline. The wear on the motors is negligible in comparison.

To get the maximum performance out of butane, trucks should have large sized motors when pulling heavy loads. It is well to have heavier clutches, transmissions and rear ends. Officials of this company believe that many present motors do not have large enough crank shafts for the added power derived from butane. This was true on the International D-50's; not true on International D-40's, due to the fact that they have smaller bore motors.

In 1940 this company bought 26 1½-ton Chevrolet semis. One of this group was converted to use butane, for test purposes. None of the others



▲

Typical installation on AB Mack. Converter shown mounted at front of engine. Hot water hose may be seen extending to rear of engine.

▼

were converted because the company intended to take advantage of a factory trade-in policy which would allow them to replace the trucks when they had run 65,000 miles. Because war production made it impossible to replace the trucks at the prescribed mileage, it has been necessary to run them as long as they would last.

Motors in the 25 Chevrolet trucks running on gasoline were all changed or completely rebuilt at 75,000 to 100,000 miles. The one truck, which has operated on butane, had its original motor until last November. Total mileage at that time was over 200,000 miles. These trucks made hauls twice each day, 365 days in the year, with a pay load of 15,400 lbs.

The first conversion was made on an AB Mack. This truck has now gone over 500,000 miles on butane with very little down time for repairs.

Plant Facilities: The company maintains its butane filling station at the Clearwater plant. Because of a number of long hauls, some of the fuel used must be bought at filling stations in distant cities. A 5000-gal. butane tank is used for storage.

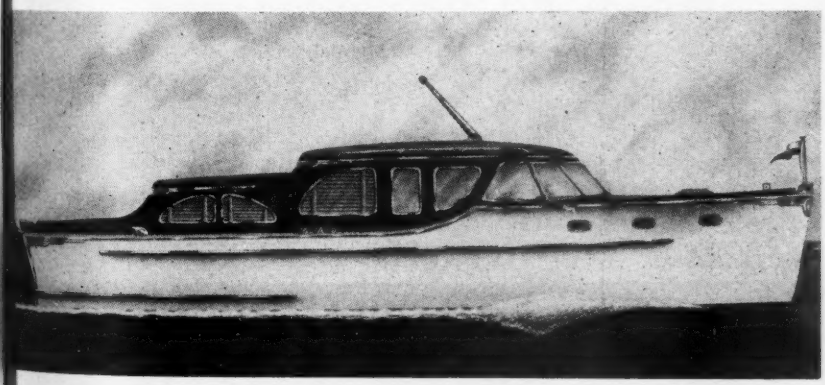
Butane Dealer Takes Agency For Line of Power Boats

Of interest to many northern California pleasure boat enthusiasts is the recent appointment of Modern Appliance Co., of San Mateo, Redwood City and Burlingame, as distributors for the "Truscott" line of power boats and sail boats. Many of these will use liquefied petroleum gas in the galley.

These boats range in sizes from 18 ft. to 42 ft. Chas. R. Rogers, owner of the Modern Appliance Co., states they are now busy getting plans organized for the development and sale of these boats and the appointment of agents, and he is endorsing the line by ordering one of the pleasure crafts for himself. It will use butane for cooking, heating and refrigeration.

Mr. Rogers' boat will be equipped with two 140 hp. Chrysler engines; will have a speed of 17 miles per hour, and a cruising range of 500 miles.

The Modern Appliance Co. distributes B-P Gas and appliances in the "Peninsula" area south of San Francisco.



Butane will be used for cooking, heating and refrigeration aboard this type of power cruiser which Chas. R. Rogers will use for pleasure—and maybe business.

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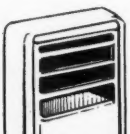
in Public Confidence, Acceptance and Demand

Day & Night Dealers in the postwar years will have the most complete line of water and space-heaters on the market. ☆ Just the name "DAY & NIGHT" on an LPG water, space or wall heater is ***enough*** for the vast majority of buyers. They have implicit confidence and an expressed strong preference for DAY & NIGHT products . ☆ This widespread public acceptance and demand are solidly built on more than a third of a century of continuous advertising for dealers . . . and honest prices, value and performance for users. ☆ Prepare now to earn bigger postwar profits. To become a DAY & NIGHT Dealer contact your jobber now. If he does not handle DAY & NIGHT products, write us direct,

AMERICA'S FINEST TODAY—GREATEST TOMORROW

WATER HEATERS



CABINET HEATERS

PORTABLE HEATERS

WALL HEATERS

PANELRAYS

DAY & NIGHT MANUFACTURING CO.

MONROVIA • CALIFORNIA

One of the Dresser Industries

NUMBER OF TRUCKS AND TRUCK TRACTORS USING TYPES OF FUEL OR POWER OTHER THAN GASOLINE IN EACH OF THE SEVERAL STATES

State of garaged address	*Number of Trucks*			*Number of Truck-Tractors*		
	All types	Diesel	Butane	All types	Diesel	Butane
ALL STATES	10,240*	4,050	3,138	4,316**	3,212	1,084
Alabama	52	25	9	9	8	1
Arizona	122	60	60	76	56	20
Arkansas	50	31	19	23	22	1
California	3,706	1,410	2,270	1,820	1,061	759
Colorado	68	41	7	114	111	3
Connecticut	55	40	6	26	26	..
Delaware	1	1	..	..	..	..
Florida	77	36	21	19	19	..
Georgia	28	15	12	10	10	..
Idaho	147	143	3	9	9	..
Illinois	658	97	30	108	101	7
Indiana	78	36	5	51	51	..
Iowa	41	36	2	11	11	..
Kansas	125	58	59	49	33	16
Kentucky	6	2	1	3	3	..
Louisiana	308	79	85	29	21	8
Maine	6	5	..	14	14	..
Maryland	27	15	1	4	3	..
Massachusetts	143	49	5	71	68	1
Michigan	82	59	6	106	105	1
Minnesota	44	27	5	141	92	48
Mississippi	70	21	48	12	8	4
Missouri	136	67	30	89	34	55
Montana	51	46	3	39	39	..
Nebraska	22	8	12	18	17	1
Nevada	46	43	3	31	29	2
New Hampshire	3	1	2	13	13	..
New Jersey	363	63	8	73	71	..
New Mexico	35	12	23	26	16	10
New York	1,918	451	15	310	297	..
North Carolina	20	14	1	120	120	..
North Dakota	21	19	1	44	7	37
Ohio	71	29	1	95	95	..
Oklahoma	102	26	72	47	10	37
Oregon	214	198	11	209	198	11
Pennsylvania	297	134	5	77	76	1
Rhode Island	12	9	1	11	11	..
South Carolina	41	25	4	22	22	..
South Dakota	17	16	..	5	3	2
Tennessee	39	13	7	35	34	1
Texas	369	109	243	36	21	14
Utah	108	82	24	58	53	5
Vermont	3	3	..	5	5	..
Virginia	38	29	3	43	43	..
Washington	309	292	8	64	63	1
West Virginia	11	11	..	20	20	..
Wisconsin	75	48	3	95	57	38
Wyoming	20	16	4	24	24	..
District of Columbia	5	..	..	2	2	..

* Includes 3052 electric and gasoline-electric. ** Includes 20 electric and gasoline-electric.

Data obtained from Public Roads Administration, Federal Works Agency.

Safety Factor Stressed In New Dispenser Unit

By RAYMOND J. KIRKBY

Project Manager, Adel Precision Products Corp.
Burbank, Calif.

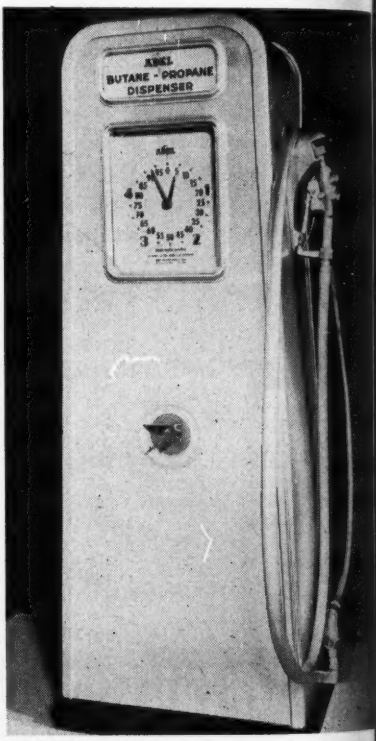
ADEL Precision Products Corp., producers of equipment for America's war effort, now joins the ranks of manufacturers producing for the liquefied petroleum gas industry, with the announcement this month that the "Adel Butane-Propane Dispenser" is now in production.

Established in Burbank, Calif., in 1938, Adel first produced line supports, hydraulic equipment, anti-icing and fuel injection systems for the aircraft industry.

To meet the demands of this fast-growing industry for safe, accurate and speedy dispensing equipment, Adel made an extensive field survey to determine the type of equipment that would pass state and national code requirements and still be within the reach of the independent owner's pocketbook.

A study was made of the existing codes in all of the 48 states that covered the storage, handling and dispensing of liquefied petroleum gas fuels, with the result that a composite unit was developed which would meet all national code requirements. For example, the city of Los Angeles requires a "dead man control" to automatically stop the flow of liquid upon the release of the control handle.

To increase the safety factor of this control in the Adel dispenser, a dual control was developed connecting the control valve and the remote control motor switch by means of overriding linkages. The operation of this control follows a simple sequence. The first movement closes the motor starter pilot circuit to start the pump. Upon building up sufficient pumping



Front view of dispenser, showing hose and nozzle.

THE ALGAS VAPORATOR

COLD – PROOF
VAPORATOR

BRINGS CITY GAS DEPENDABILITY

TO FARMS ☆
HOMES ☆
COMMERCIAL & INDUSTRIAL PLANTS
USING BUTANE AND PROPANE FUELS

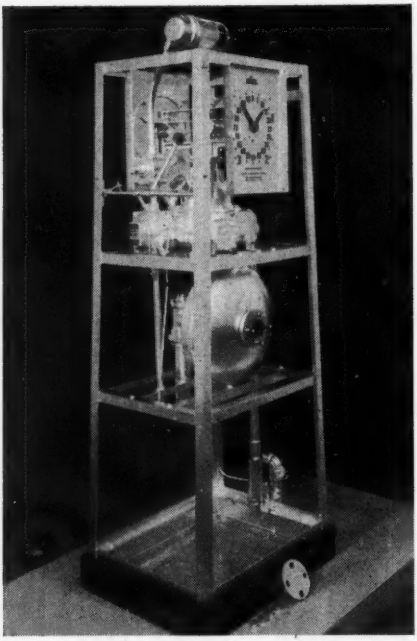
NO MORE WINTER PRESSURE FAILURE WHEN YOU USE AN ALGAS VAPORATOR

SERVICE AVAILABLE THROUGHOUT U. S. A.
Write for Bulletin V-1
Main Office, 1109 Santa Fe Avenue
Los Angeles 21, California

AMERICAN LIQUID GAS CORPORATION
LOS ANGELES CHICAGO

pressure for a dispensing—a matter of seconds—the control lever is then moved forward to control the flow of B-P Gas at the desired rate. Release of the control handle first closes the control valve, then opens up the motor switch circuit to stop the pump. In an emergency, this operation takes only a fraction of a second to complete.

In the event of mechanical or structural failure of any of the external linkages, the control valve automatically closes and prevents further flow of liquid. The valve is normally closed and must be positively held open to control the liquid flow. This is accomplished by a specially designed fast return helix in the control valve.



Skeleton view of dispenser, from the control side, with the vapor separating tank flange removed, exposing suction strainer.

To further safeguard against uncontrolled liquid flow, an excess flow valve has been installed near the outlet of the dispenser and hose entry. A good many B-P Gas systems installed today, with the possible exception of tank trucks, have these excess flow valves installed in the storage tank outlets. This method of installation, while safeguarding the tank, does not guard the whole system. Resistance through the lines, fittings, pump, meter and control valves causes enough drop in pressure to considerably restrict flow in the event of a broken hose at the dispenser, so that the excess flow valves in the tank will not close. Many tank outlets are 2 inches and in a good many cases larger, while the dispensing hose outlet is ¾ inch.

To prevent destruction of the hose, nozzle, or damage to the dispenser in the event of a hose being pulled off, a patented automatic shear coupling has been installed in the outlet fitting. This coupling will release the hose if sufficient tension is placed upon it by accidental motion of the truck to which it is attached but will withstand repeated pulling in normal use by the operators. When sheared, two excess flow valves in the coupling close, permitting only a very small amount of liquid to escape and allowing the hose to remain full.

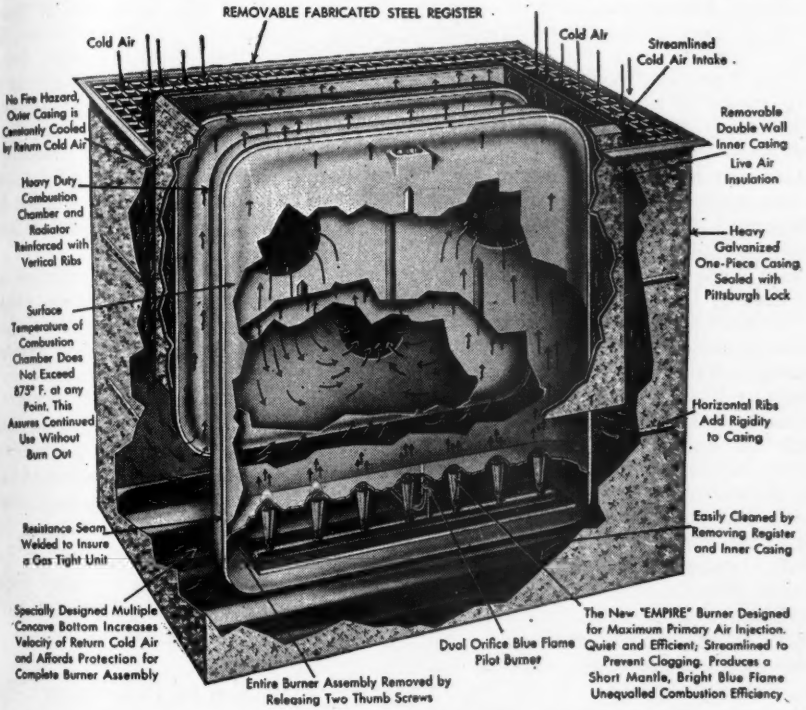
Vapor Trap Valve is Feature

To meet the requirements of the Bureau of Weights and Measures and to assure that the meter will live up to its built-in precision and accuracy a vapor trap valve has been installed in conjunction with a vapor separating tank. Through research it has been developed that a superimposed pressure higher than the vapor pressure at any given temperature is sufficient to collapse any ex-

Empire's New
GAS FLOOR FURNACE

Excellently designed, perfectly styled, attractive in appearance, efficient, easy to install and easy to service.

Scientifically designed to utilize every cubic inch of space for air circulation. No valves, control brackets or burner pans extend beyond casing line. Areas which are "Dead space" on the conventional floor furnace are now utilized.


REMOVABLE FABRICATED STEEL REGISTER
Cold Air
Cold Air
Streamlined Cold Air Intake
No Fire Hazard, Outer Casing is Constantly Cooled by Return Cold Air
Removable Double Wall Inner Casing
Live Air Insulation
Heavy Duty Combustion Chamber and Radiator Reinforced with Vertical Ribs
Heavy Galvanized One-Piece Casing Sealed with Pittsburgh Lock
Surface Temperature of Combustion Chamber Does Not Exceed 875° F. at any Point. This Assures Continued Use Without Burn Out
Horizontal Ribs Add Rigidity to Casing
Resistance Seam Welded to Insure a Gas Tight Unit
Easily Cleaned by Removing Register and Inner Casing
Specially Designed Multiple Concave Bottom Increases Velocity of Return Cold Air and Affords Protection for Complete Burner Assembly
Dual Orifice Blue Flame Pilot Burner
The New "EMPIRE" Burner Designed for Maximum Primary Air Injection. Quiet and Efficient; Streamlined to Prevent Clogging. Produces a Short Mantle, Bright Blue Flame Unequalled Combustion Efficiency
Entire Burner Assembly Removed by Releasing Two Thumb Screws

The new Empire burner is designed for maximum primary air injection. The quiet, efficient, streamlined non-clogging design produces a bright blue flame of short mantle. There is no impingement. No field adjustment is required. The burner that reduces service costs.

Empire Stove Company

BELLEVILLE, ILLINOIS

MANUFACTURERS OF GAS HEATING AND COOKING APPLIANCES

densable vapors present in the metering circuit.

Before entering the metering circuit all liquid is pumped through a vapor separating tank which has a continuous bleed orifice incorporated in it. This orifice will bleed off all of the noncondensable gases and return them through a vapor return line to the storage tank.

Meter dispensing accuracy is assured by having only vapor-free liquid pass through the meter at a pressure that will prevent gasification or breaking down of the liquid into vapor. This superimposed pressure is a back pressure created by the vapor trap valve and has to be overcome by the pump before the valve will open to discharge liquid. This valve creates sufficient back pressure to prevent the gases from breaking out of the liquid to destroy meter accuracy.

To prevent indiscriminate use of the Adel dispensing "Buta-Fill Nozzle," a patented automatic positive connection feature has been included to insure tank connection before the nozzle can be operated. With a trip-free lever, positive tank connections must be made before the lever will engage with the main poppet valve to permit dispensing. Fast make and break tank connections are provided for quick attachment.

After a dispensing, a small bleed valve in the side of the nozzle vents any small amount of trapped liquid to the atmosphere. Thus, there is eliminated the possibility of "frost burn," sometimes experienced by operators when their hands come in contact with frosted connecting rings.

The dispenser is provided with lighting for night operation. Two advertising panels provided for customer's name or fuel brand, are illuminated and the two 100-gallon dials are indirectly lighted. Explosion-proof electrical equipment is used throughout.

Carbide Company Offers New Lubricant for Engines

A new internal combustion engine lubricant has been announced by Carbide and Carbon Chemicals Corp., New York. This lubricant has properties quite different in many respects from oils derived from petroleum.

The lubricant can be manufactured to any desired viscosity and is wax-free. Pour-points vary from —30° to —80°F. Flash points range from 300°F. up. The new materials have densities approximating that of water. Carbon residue values are less than 0.01%, regardless of viscosity. The lubricant is characterized by low change of viscosity with change in temperature, having viscosity indices in the range of 140 to 160.

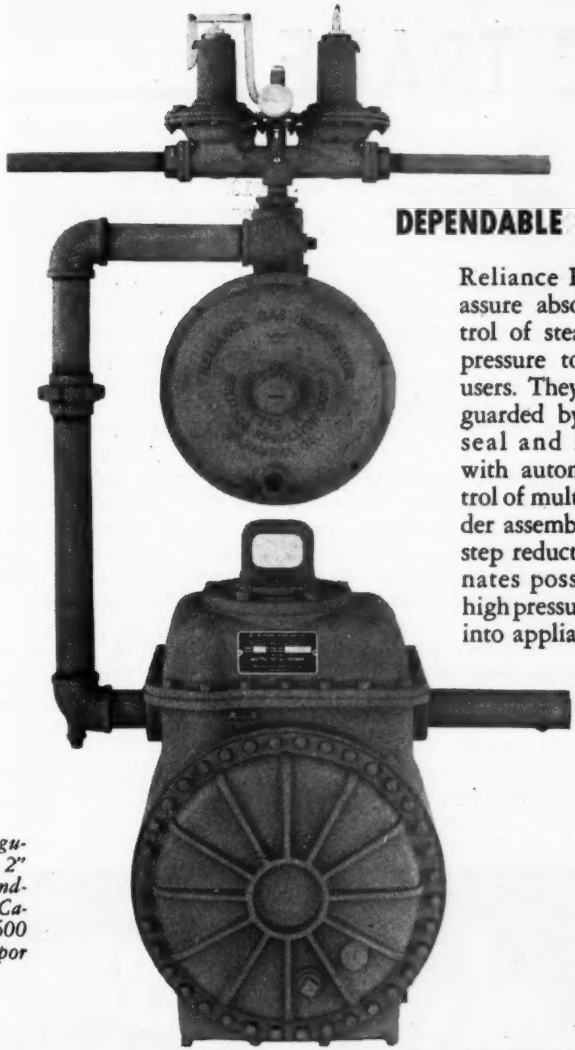
Carbide's new lubricant contains no petroleum oils. It is claimed that these lubricants practically eliminate sludge and varnish formation in the engine. Wear of the moving parts is in line with wear experienced with ordinary mineral oils. Ease of starting in cold weather is an outstanding advantage.

These compounds are manufactured in two types, water soluble and water insoluble. The latter type is used for lubricating internal combustion engines. Greases having unusual high- and low-temperature properties have been made from these lubricants.

Paul D. Oakford Purchases Ramona, Calif., Gas Business

Paul D. Oakford, long-established B-P Gas dealer of Long Beach, Calif., has purchased the business of E. P. Hughes who has been operating in Ramona, Calif.

In addition to serving domestic customers, plants in both places will have dispensing units for automotive equipment burning butane or propane.



Type MC Regulator with 2" Type H Secondary Regulator. Capacity up to 6600 cu. ft. of Vapor per hour.

DEPENDABLE SERVICE

Reliance Regulators assure absolute control of steady outlet pressure to L-P gas users. They are safeguarded by a safety seal and installed with automatic control of multiple cylinder assemblies. Two-step reduction eliminates possibility of high pressures getting into appliances.

AMERICAN METERS

RELIANCE REGULATORS

RELIANCE REGULATOR CORPORATION
1000 MERIDIAN AVENUE, ALHAMBRA, CALIFORNIA

THE TRADE

R. A. Williams, vice president, in charge of sales, **American Car and Foundry Co.**, announces that E. A. Lofquist, a graduate of the U. S. Naval Academy, and until recently on active duty as a captain in the U. S. Navy, has been appointed a special representative for the ACF sales department.

Mr. Lofquist will have his headquarters at the company's Chicago office.

Louis Stockstrom, 86, chairman of the board of directors of **American Stove Co.**, widely known in the stove manufacturing business, died July 5 at his home in St. Louis. He was the last survivor of the original founders of his company.

Mr. Stockstrom was born in Oldenburg, Germany, Nov. 10, 1858. He received his early schooling there and also served an apprenticeship to learn the machinist trade. He came to America in 1880.

Mr. Stockstrom was elected president of American Stove Company in 1927, and directed the affairs of the company until 1938 when he was succeeded by his son, Arthur Stockstrom.

In preparation for postwar distribution of water pumps, **Peerless Pump Division** of Food Machinery Corp. has rearranged territorial distribution by the establishment of five sales districts.

Warner G. Vaughan has been appointed Atlantic district sales manager, with offices established in Suburban Square, Ardmore, Pa.

The Southeastern territory has been placed under the management of Charles E. Tierney with offices in the Blair Building, 215 Church Street, Decatur, Ga.

Edward W. Pierce will continue in charge of the Central territory and as district sales manager is making his headquarters at the Peerless Canton, Ohio, works.

The Southwestern territory has for its district sales manager William E

Top officials of American Stove Co. and division sales managers are shown in St. Louis taking a three-day sales training course. All of these executives took the comprehensive training that will be given later to the company's salesmen.

Griffin and headquarters are at 122 E. 5th St., Plainview, Texas.

B. A. Tucker is Pacific district sales manager, with headquarters at 301 West Avenue 26, Los Angeles.

R. C. ROBERTSON

Superior Valve & Fittings Co. announces the appointment of R. C. Robertson as manager of its Eastern district office.

Mr. Robertson joined Superior on June 16 and will handle sales in the eastern states, covering from Maine to North Carolina, including the eastern half of New York and Pennsylvania. He will make his headquarters at 60 East 42nd St., New York City.

The Kalamazoo Stove & Furnace Co., Kalamazoo, Mich., has recently published a colorful booklet entitled, "243 New Ideas for Your Kitchen" which will be of interest to those desiring to re-plan and re-decorate kitchens after the war. These are available to dealers upon request.

While new stove models are not included, these will be added as soon as they start coming off the production line. Wartime developments at Kalamazoo have made possible new methods which will permit the company to make stoves and furnaces much faster, more accurately and at a lower mass production cost than formerly. The reconversion program contemplates extensive modernizing and streamlining and it is stated that a new stove will roll off the line every 20 seconds.

As a means of improving its methods of distribution in the Pacific Coast area, **Kerotest Manufacturing Co.**, Pittsburgh valves and fittings manufacturer, announces the establishment of a new warehouse at 3311 E. Slauson, Los Angeles, with J. A. Swaton as district manager for steel valves and J. A. Norris as district manager, brass division.

J. A. NORRIS

Mr. Swaton, with Kerotest for over 20 years, and Mr. Norris will maintain headquarters in the new warehouse and the latter will coordinate all activities throughout the entire Pacific Coast area.

Van D. Clothier will continue as the southern California representative for brass valves, with headquarters at 1015 East 16th St., Los Angeles.

Appointment of the Crum Distributing Co., Decatur, Ill., as Estate "Heatrola" range and heater distributor for 20 Central Illinois counties, is announced by S. C. Bernhardt, vice president in charge of sales of the Estate Stove Co.

In making the announcement, Mr. Bernhardt stated that a change in the Estate distribution set-up was necessitated by the decision of Linn & Scruggs Co., former Estate "Heatrola" distributors, to liquidate the wholesale division of their company. The Crum Distributing Company, a new distributing concern, is headed by R. R. Crum, who was formerly general manager of the wholesale division of Linn & Scruggs Company.

HUMPHREY

Gas Unit Heaters

Humphrey Gas Unit Heaters are styled to appeal to the customer, but beneath their exterior appearance — and most important of all — is QUALITY THAT ENDURES. Reflected at every point in the construction of Humphrey Unit Heaters are sound engineering, rugged construction and careful workmanship.

Heavy, sturdy motors of proved dependability and ample reserve power, provide positive fan forced circulation of the heated air. Unique safety controls offer protection features that every user appreciates. Every part of a Humphrey Unit Heater contributes to long and satisfactory heating service.

GENERAL GAS LIGHT COMPANY KALAMAZOO, MICHIGAN

23 Warren St., New York City | 2nd Unit Santa Fe Bldg., Dallas | 225 Eleventh St., San Francisco

Safety

Test Exam on "NBFU 58"

PART 3:

Storage and Equipment Truck Deliveries.

PART of the "safety meetings" program of the Phillips Petroleum Co. concerns questions and answers on the National Board of Fire Underwriters Pamphlet No. 58 to familiarize employes with its important provisions.

The accompanying chapter is the last of three covering this subject. Test yourself by check-marking your answer to each question prior to referring to the correct answers in the right-hand columns.

•

F. F. CAMPBELL

IT IS AN INcreasing practice among progressive companies to hold safety meetings in their own organizations. The Philgas Division of the Phillips Petroleum Co. is one such company. It has a well planned program, one that can be, and should be, followed as closely as possible by all dealers and distributors.

This Philgas safety program has been made available to the LP-Gas industry through F. F. Campbell, manager of the retail division, and will appear, chapter by chapter, in BUTANE-PROPANE *News*.**—Editor.**

1. Where containers are to be filled from tank truck on customers' premises, may the inlet terminal be located inside the building?

1. No.

2. What would be the proper location of such inlet terminal with respect to building?

2. Adjacent to container or 10 feet from any building.

3. Why must filler pipes be provided with approved automatic back flow check valves?

3. To prevent the back flow and discharge of tank contents in case filling connection is broken.

4. On which connections are approved excess flow valves required on containers?

4. All connections except safety reliefs, filling connections and outage gages where discharge opening does not exceed No. 54 drill size.

5. When is it necessary to identify and label all inlet and outlet connections on container, except relief valves, liquid level gaging devices and pressure gage connections?

5. On containers used to supply fuel directly to internal combustion engines.

6. What shall such identification indicate?

6. Whether or not connections communicate with liquid or vapor space of container.

7. A hose used for transferring liquid from one container to another shall be designed for what bursting pressure?

7. Five times designed working pressure of container.

8. A container of 18,000-gallon water capacity has a capacity of how many gallons of liquefied petroleum gas of .515 specific gravity, weight of 4.25 lbs. per gallon at 60°F., if water weighs 8.238 lbs. per gallon?

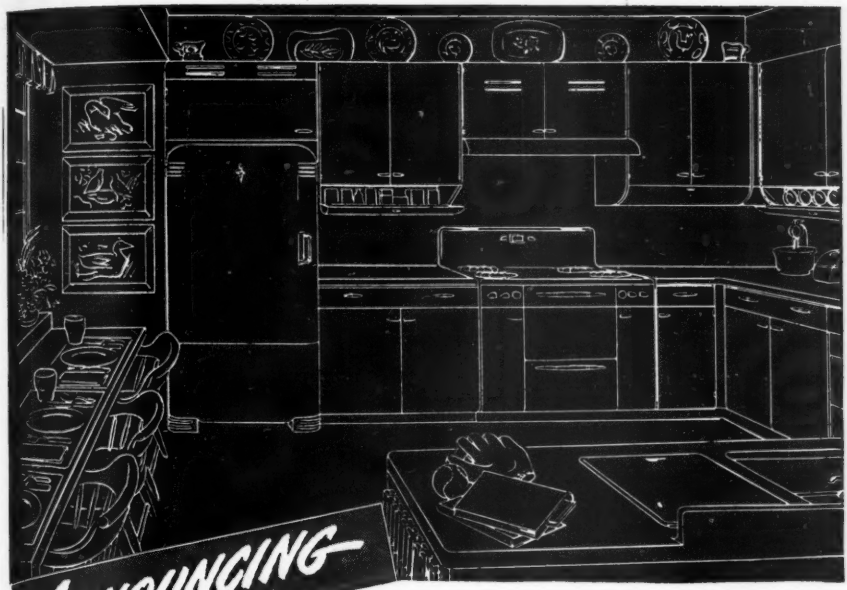
8. 15.002.

PRESSURE TANKS

TO MEET *YOUR* TRANSPORTATION NEEDS

American Engineers are ready to help you with your pressure tank transportation requirements. Your special requirements are everyday problems for our experienced craftsmen. *Call for preliminary consultation.*

AMERICAN PIPE & STEEL CORPORATION
Manufacturers and Distributors
ALHAMBRA CALIFORNIA



New Freedom L-P Gas Kitchen
Designed by Servel

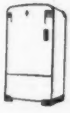
Soon you'll be able to tell customers about the new Servel "Unified" Gas Kitchens. Complete New Freedom L-P Gas Kitchens will be made available for the first time by Servel, Inc. They will feature L-P gas appliances that can be arranged in a "Unified Kitchen."

A specially designed air-control cabinet over the range provides for the removal of objectionable odors and moisture... filters out the grease and grime resulting from the cooking foods. Use of the air-control cabinet may be adapted to seasonal needs, and will in no way alter previously accepted practices for the installation of L-P gas ranges and L-P gas refrigerators. Any L-P gas range built to the C-P standards of performance may be specified in the Servel Unified Gas Kitchen.

COPR., 1945, SERVEL, INC.

By aggressively promoting the trend to complete kitchens, you'll be able to step up sales of L-P gas appliances... boost your postwar L-P gas load too. For complete information on New Freedom L-P Gas Kitchens, write to Servel, Inc., Evansville 20, Indiana.

SERVEL, Inc.



PEACETIME MAKER OF THE SERVEL GAS REFRIGERATOR

9. When may an ASME container be equipped with a minimum of 30% of the normal discharge area required for liquefied petroleum gas containers?

9. If 1200 gallon water capacity or less and installed underground and covered before filling with liquefied petroleum gas. Liquefied petroleum gas must be removed before uncovering.

10. Containers thus equipped shall be filled when?

10. After installation and covering.

11. On containers of 1200-gallon total water capacity or less, what is the total discharge area of all fuse plugs permitted in one container?

11. 0.25 sq. in.

12. What is the minimum ratio in percent between the relief valve and fuse plug?

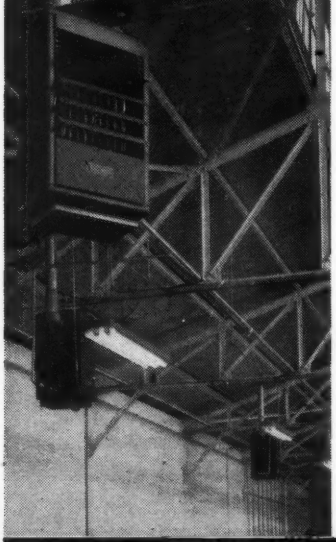
12. Fuse plug not exceeding 0.25 sq. in. and relief valve area at least 30% of specified discharge area.

13. What is the range of yield temperature for metal used in fuse plugs on ASME containers?

13. 208°F. minimum and 250°F. maximum.

14. Under what conditions is it not necessary to equip vaporizers with fuse plugs?

14. Under all conditions.



1 ***easy-to-use***
2 ***easy-to-install***
3 ***easy-on-the-purse***

1 **The Reznor Unit Heater controls itself, automatically. Turns on or off as needed. All you have to do is set thermostat to desired temperature.**

2 **Gas and electrical connections are the only requirements. No boilers, steam or water lines or expensive chimneys necessary.**

3 **Fuel is only upkeep cost and you pay only for fuel used. No waste, no firemen or auxiliary equipment needed. You have heat when you want it — where you want it.**

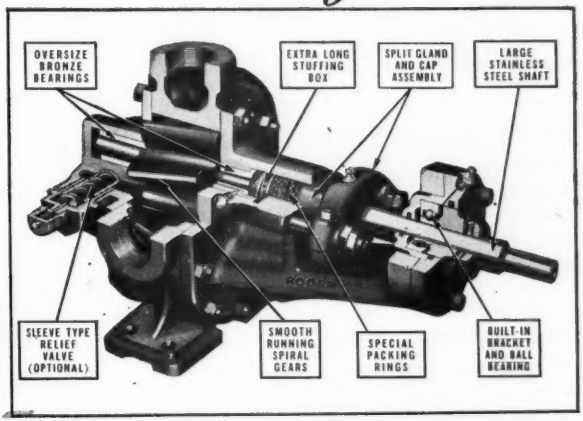
***Send for the* NEW REZNOR CATALOG**

REZNOR

REZNOR MANUFACTURING CO.
304 JAMES STREET, MERCER, PENNA.

"GAS HEATERS EXCLUSIVELY SINCE 1888"

Look at these Roper features


OVERSIZE BRONZE BEARINGS
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Just 2 Moving Parts

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Built to a design so simple and practical that it has only two moving parts . . . spiral pumping gears that operate at regular truck speeds and against low pressures . . . the Roper gives longer trouble-free service at minimum cost. User after user has reported millions of gallons pumped at no upkeep cost whatever. Ropers are dependable. Easy and quick to install in small space.

Send For FREE Booklet No. 9-57

Individual parts illustrated and described in detail, cutaway views of construction, dimensional drawings and helpful data.

GEO. D. ROPER CORP.

ROCKFORD, ILLINOIS

ROPER
Rotary Pumps

Dependable Since 1857

15. Under what conditions is it not necessary to equip vaporizers heated by artificial means with safety valves?

15. If liquid can pass back to originating container at all times without hindrance.

16. In container installations where shall safety relief valves be located?

16. On container.

17. On liquefied petroleum gas containers located in industrial plants, container filling plants and town gas plants, the relief discharge shall terminate where with respect to container?

17. Discharge upward and terminate 10 ft. above container.

18. On a 4000-gallon liquified petroleum gas container designed for 200 lbs. W.P. located 25 ft. from the adjoining property line, the discharge from relief shall terminate where?

18. Vertically upward.

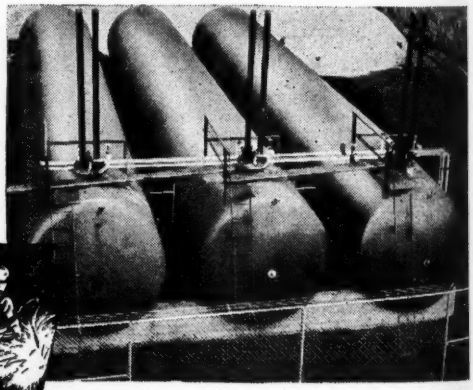
19. May return bends be installed as terminals on relief valves on liquefied petroleum gas storage tanks?

19. No.

POST WAR PROPANE EXPANSION

After every war, new ideas, restricted in their development by necessary wartime regulations, spring into existence. Now that the war is over the dream of city conveniences for cooking, heating, refrigerating and supplying hot water to farmers and small town residents will, we believe, be reflected in a greatly increased demand for L-P gas.

The expanding propane gas industry will bring low priced L-P gas service to rural districts. NOW is the time to make plans for postwar expansion.



DOWNINGTOWN IRON WORKS
DOWNINGTOWN, PA.
WELDED and RIVETED PRODUCTS

Naturally when considering the purchase of propane storage tanks either for underground or surface use, the name DOWNINGTOWN stands for long and successful experience in design, selection of materials and fabrication of this type of construction. Consult our engineers now—inquiries welcome.

YES, we're making furnaces again

—E. L. PAYNE
President

For three years, we've concentrated on war production. But now, reconversion! . . . in limited volume at first, increasing as available materials permit. ★ Continuing under the same management, but better-equipped in every respect . . . we reaffirm our 30-year standards of design, quality and performance. PAYNE Furnaces will continue to meet the highest expectations of gas companies, dealers and the public.

PAYNE FURNACE COMPANY
(One of the DRESSER Industries)
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We shall allocate, fairly and equably, any production of: FLOOR FURNACES • DUPLEX FURNACES • "SENTRY" • "ZONEAIR" and "SPACESAVER" FORCED-AIR UNITS • GRAVITY MODELS • PAYNE "A" VENT and other products.

★

PAYNE ZONE-CONDITIONING ... successor to old-fashioned central heating. Request *FREE* booklet.

PAYNEHEAT
OVER 30 YEARS OF LEADERSHIP

GAS FUEL HAS EVERYTHING

20. Why?

20. Because discharged vapors, being heavier than air, want to accumulate at lower levels and we desire to prevent this.

21. Give location, with respect to building openings, of discharge from relief valves on vaporizers in industrial plants?

21. Discharge shall be 5 ft. above highest opening in building.

22. May a common discharge line be used for two relief valves, one set to relieve at 145 lbs. pressure and one set for 100 lbs. pressure?

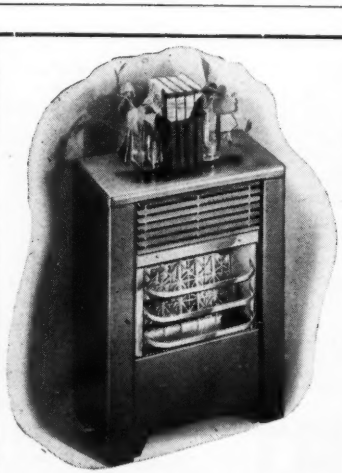
22. No.

23. Where a header is used for two or more relief valves what size pipe shall be used?

23. Header will have total cross sectional area equal to sum cross sectional area of the individual lines.

24. If the discharge pressure of a regulator is 2 lbs., how should the relief valve protecting this system be set?

24. Four lbs. minimum, and 6 lbs. maximum pressure.



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A.G.A. Approval, Hi-Crown Burners, Automatic Lighting, Syphonaire Chassis, and Air Insulated Cabinets are features your customers want. Finer —Safer heaters, yet priced unbelievably LOW. Write for literature.

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L. P. G. GAS HEATERS

A complete line of Vented and Unvented Quality heaters. Their Ultra Smart Appearance, Outstanding L.P.G. Performance and many Exclusive Features create unprecedented user enthusiasm. You are assured satisfied customers and decidedly lower service costs when you sell this fine line.

BUT. PRO. MIX. NAT. MFG. GAS.

FAMOUS HI-CROWN BURNER

BLUE FLAME PILOT LIGHT

Leading L.P.G. Distributors from coast to coast rate it the finest of all burners for Butane. It "performs" without coaxing, constant cleaning or adjusting. Its quiet, odorless operation, great flexibility and reserve capacity insures your customers being completely satisfied.

DEARBORN STOVE CO.

3256 Milwaukee Ave. CHICAGO, ILL.

3625 S. Grand Ave. LOS ANGELES, CALIF.

25. **A similar relief on line leading from regulator normally discharging 4 lbs. pressure will be set for what?**

25. Eight lbs. minimum and 9 lbs. maximum pressure.

26. **If a regulator is installed inside of building where shall vent lines terminate?**

26. Outside building and at least 5 ft. horizontally away from any building opening at lower level.

27. **Give description of relief valve termination on 2000-gallon underground tank.**

27. Discharge upward and terminate 10 ft. above the ground.

28. **When are gaging devices required on ASME liquefied petroleum gas storage tanks?**

28. In all instances.

29. **Where visible type gage glasses are used, the gage cocks will be how constructed?**

29. With metallic hand wheels equipped with knobs or holes.

30. **When is an excess flow valve required on a rotary tube type gaging device?**

30. When bleed valve opening exceeds No. 54 drill size.

31. **When calculating the length of fixed tube gaging device for above ground container, what temperature is used in calculations?**

31. 40° F.

"DON'T FENCE ME IN"

CRIES YOUR GAS CUSTOMER
"BUY THAT TRUCK OR TRANSPORT TANK
NOW—PRONTO—QUICK—ON THE DOUBLE"

L-253 HAS BEEN REVOKED ELIMINATING WPB 2317
CLEARING THE WAY FOR YOUR PURCHASE
IF YOU ANTICIPATE PURCHASING A TRUCK
TANK OR TRANSPORT TANK IN 1945—CONTACT

DELTA TANK MANUFACTURING CO.
BATON ROUGE, LOUISIANA

32. For underground, what temperature?

32. 50°F.

33. Which container could be filled with the most liquefied petroleum gas of same specific gravity in full compliance with NBFU No. 58?

33. Underground.

34. If an ASME container were designed for 100 lbs. W.P. and the minimum safety valve setting was 100 lbs. what would be the designed W.P. of an API-ASME container?

34. 125 lbs.

35. Under what conditions may ASME containers be reinstalled underground?

35. Must be hydrostatically retested at pressure specified for original hydrostatic test required by code under which constructed and show no serious evidence of corrosion.

36. Under what conditions may ICC containers be reinstalled underground?

36. Never.

37. What type foundations shall be used for supporting aboveground storage containers except "skid tanks?"

37. Masonry or non-combustible structural supports on firm masonry foundations.

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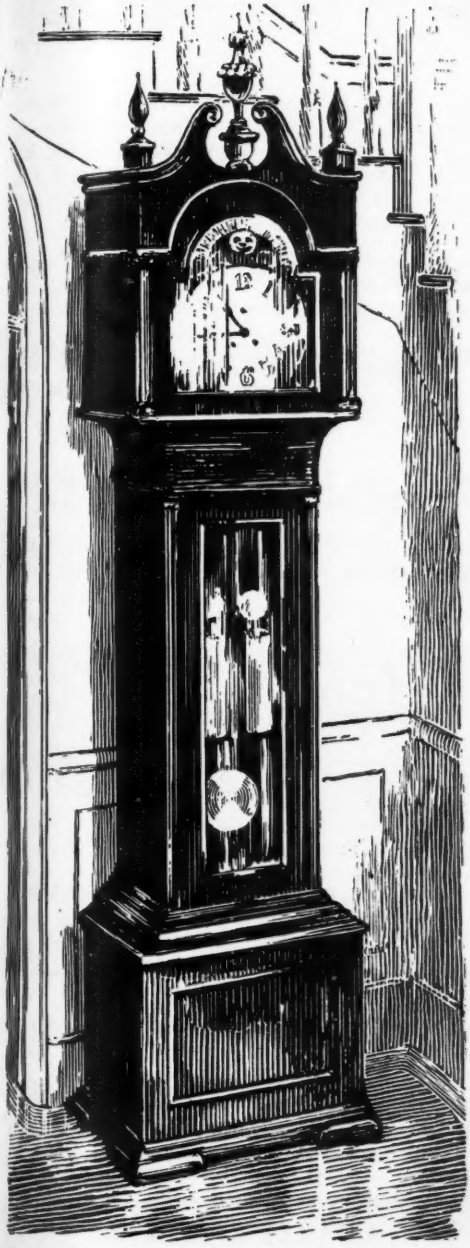


The clock ticks . . .

hours slip by . . . days roll into months . . . another calendar page is torn away and we come ever closer to total victory. With each such passing month comes a well earned right to lay down a bit more of our war work burden and increase the use of our resources and abilities in civilian production — the manufacture of UNIVERSAL GAS RANGES.

As we gear for reconversion now, our full determination is to employ our accumulated skill in but one direction — we shall specialize in making the finest gas ranges possible ..UNIVERSAL GAS RANGES *- America's Preferred Cooking Choice.*

CRIBBEN & SEXTON CO.

Manufacturers of Universal Gas Ranges

700 N. SACRAMENTO BLVD. CHICAGO 12, ILLINOIS

38. What will be placed between foundation and tanks?	38. Material suitable to prevent corrosion where tank rests on foundations.
39. When may containers be installed on non-fireproofed, ferrous metal supports?	39. If mounted on concrete pads and if distance from outside bottom of container to the ground does not exceed 5 ft. and provided container is in isolated location and approved by regulatory body having jurisdiction.
40. At what depth shall underground containers be buried below ground level?	40. Below frost line or at least 2 ft.
41. When are anchors required?	41. When there is possibility of tank floating.
42. What is maximum water capacity permitted for "skid tanks?"	42. 30,000 gallons.
43. When are fire-resisting foundations not required for such tanks?	43. If used at temporary location for period not to exceed 180 days.
44. What is minimum and maximum clearance allowable between tank bottom and skid bottom?	44. 2 in. minimum and 12 in. maximum.

Standard FLAMO . . . Sold in cylinders for Industrial, Commercial and Domestic uses.

Standard PRO-GAS and BU-GAS . . . delivered in bulk through Standard of California Distributors.

CALOL INDUSTRIAL GAS No. 1 . . . Supplied to gas companies for use in manufacture of gas distributed through gas mains.

STANDARD OF CALIFORNIA

45. May lugs or brackets for pipe support be welded to the container in the field?	45. No.
46. Other than where combustible gas-air mixtures are desired, what provision shall be made to prevent the generation of combustible mixtures in gas-air mixing plants?	46. Some means provided for automatically shutting down gas-air mixing equipment before a combustible mixture is generated or a flame arrester will be provided.
47. Why are dikes or embankments not generally required for liquefied petroleum gas storage tanks?	47. Because of the pronounced volatility of the product at atmospheric temperature and pressure.
48. Under what conditions may they be required?	48. If there is possibility, in cases of rupture, of contents overflowing on adjacent property, or due to slope of ground.
49. What protection is required for tank accessory equipment?	49. Protection against mechanical injury and tampering.
50. What type protection is required for valves, regulators, etc., on underground containers?	50. All valves and connections will be located within a substantial dome.
51. Under what conditions are "drips" required in liquefied petroleum gas piping?	51. Whenever gas may condense to a liquid due to temperature below 30°F.

The War Production Board took action August 22, to eliminate at the end of September the old wartime priorities control system, including the Controlled Materials Plan, and to substitute a new, limited system for use during the reconversion period.

Butane, Ltd., Has Withdrawn From Barstow, Calif.

Contrary to the report that appeared in the July issue of BUTANE-PROPANE *News*, Butane, Ltd., is no longer operating in Barstow, Calif.

Charlie Wright, president of Butane, Ltd., states that his headquarters are now located at 1804 S. Main St., Los Angeles. This location is maintained for retail sales and some manufacturing.

California Propane Dealer Becomes Major in War

Major Jack Reynard, owner of Propane Gas Service, San Fernando, Calif., has returned home on furlough. Mr. Reynard left for the European war a lieutenant and returned a full major. It is expected he will be briefed for active duty in the South Pacific in the near future. Don Loomis continues to manage the company in the absence of Mr. Reynard.

Texans To Write Own Insurance

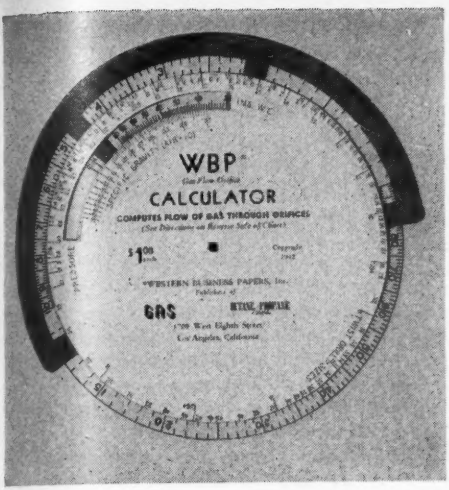
TO provide adequate protection to its members, the board of directors of the Texas Butane Dealers Association has approved the organization of its own casualty company. Efforts to complete all plans quickly have been spurred by recent Texas legislation which requires all dealers to be adequately covered by specified insurance by Sept. 4.

Action culminating in this decision occurred on July 9, following election of new association officers for the ensuing year (see Page 42). Bryan White, chairman of the committee on insurance, reported that after an extensive investigation of rates of insurance companies writing coverage for dealers in liquefied petroleum gas decided that it would be profitable for members to finance their own company and meet their own losses, if any occur.

The new Texas law (see message from Texas Railroad Commission, Page 42) requires that every dealer who handles butane or makes butane installations must carry at least $10,000 worth of liability insurance and $5000 worth of property damage to operate.

Mr. White found that dealers showed no hesitancy in agreeing to subscribe funds for their own company, believing their business is a sound risk.

The proposed company will fur-



GAS FLOW ORIFICE CALCULATOR

Invaluable to LP-Gas Engineers, Shop Men, Domestic Appliance Service Departments, LP-Gas Appliance Manufacturers, and All Others Who Need to Check or Determine LP-Gas Orifice Sizes.

- **Easy to Use and Carry**
- **No Need for Calculations**

Ever had to convert an appliance from manufactured or natural gas to LP-Gas and needed to know what orifice size to install? Ever had to estimate how much gas a burner could handle? Ever had to convert B.t.u. per hr. to cu. ft. per hr., or vice-versa? Ever had to know the B.t.u. input load of an appliance or industrial burner? With the Gas Flow Orifice Calculator you can quickly and accurately work out all these and many other problems.

Checks all factors relative to orifice sizing for gases from 300 B.t.u. to 3300 B.t.u. at pressures from .5-ins. to 15-ins. water pressure. Determines the flow of orifices from sizes 1 to 75 number drills, from sizes A to Z in letter drills, and from sizes 2/64 to 32/64 in fraction drills.

- **No Reference to Tables**
- **Just Set Scales and Read**

Priced for quantity purchase to enable you to obtain a sufficient number for everyone in your organization concerned with orifice sizing. Privilege to return within 10 days, for any reason, further assures your satisfaction. We pay postage on orders accompanied by remittance. Add 2½% sales tax on California orders; 10% excise tax on Canadian orders.

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Company.....

Address.....**City and State**.....

nish products liability, fire and truck liability insurance. Capital stock and preliminary operating expenses will be subscribed by dealers, with a minimum sum of $105,000 required. In order to ensure the enforcement of proper safety rules, the insurance company plans the employment of two or more safety engineers to inspect premises, equipment and personnel of policy holders.

In addition to spreading the cost of any loss among all of the dealers who may be stockholders, it is thought that every stockholder would have an additional, personal incentive in seeing that losses are held to a minimum.

As required by law, the proposed insurance company must be separate from the Association, but the two organizations can and will have interlocking directorates and will operate from the office of the Texas Butane Dealers Association.

Will Install 20,000-Gal. Plant at El Cajon, Calif.

A new liquefied petroleum gas company will open for service in the San Diego area soon under the name of Hercules Butane-Propane Co. The bulk plant and service station will be located at El Cajon, Calif. The Hercules Oil Co. of San Diego is the parent company.

Heads of the new company are G. W. Jackson, president; W. E. Bowser, secretary; E. E. Adams, vice-president. Construction of the new station, which will include 20,000 gal. propane storage, is now under way.

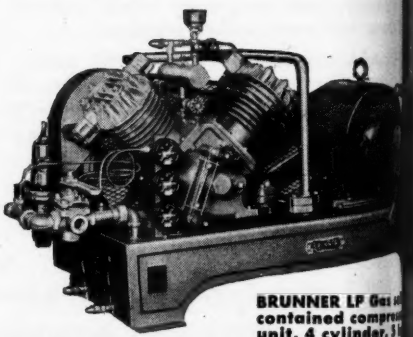
When you UNLOAD TANK CA
make sure they're EMPT

After all liquid petroleum has been transferred from a tank car or tank truck there is still a considerable quantity of vapor left in the tank. This cannot be recovered by a liquid pump. This vapor amounts to from 500 to 1000 lbs. of LP Gas in every tank car unloaded! You pay for this lost poundage as well as its transportation!

This vapor can be recovered with the Brunner LP Gas Unit, a compressor assembly that pumps volatile liquids and recovers their residue vapor. It is a package unit that is outstanding in speed, efficiency, safety and low cost.

BRUNNER MANUFACTURING CO.
UTICA 1, NEW YORK, U. S. A.

ARMY E NAVY
BRUNNER
For over 37 years the Symbol of Quality



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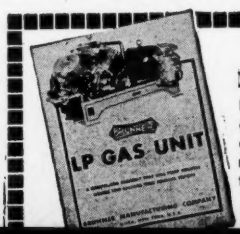
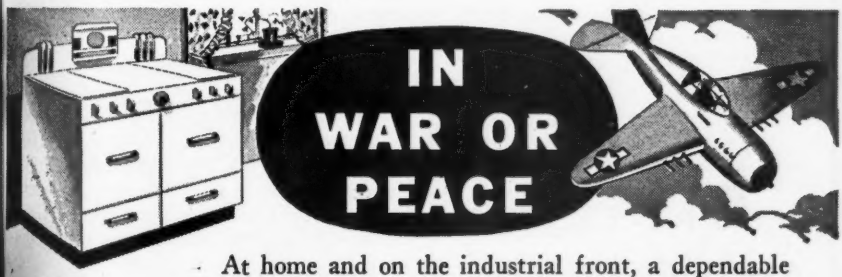


WRITE FOR
NEW FREE BO
It describes the Brunner L
and contains more illus
agrams, tables and valu
mation on the handling
than any booklet ever is

OUR 60th YEAR
OF DEPENDABLE SERVICE

DESIGNERS and
FABRICATORS of
A COMPLETE "MOSCO" LINE
OF LP-GAS CONTAINERS

MOSHER STEEL CO.
DALLAS HOUSTON TYLER



At home and on the industrial front, a dependable source of Butane and Propane means more satisfied customers. For more than fifty years, through wars and in peace times, Carter has faithfully served. Write us for higher quality Butane and Propane.

The CARTER Oil Company
DEHYDRATED
PROPANE • BUTANE
WHOLESALE ONLY
TULSA, OKLAHOMA

LIQUEFIED PETROLEUM GAS

Look forward confidently with CITIES SERVICE as an experienced source of LPG.

•

CITIES SERVICE is expanding its production of these products.

•

CITIES SERVICE is increasing its fleet of LPG tank cars.

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CITIES SERVICE

means

GOOD SERVICE

•

CITIES

SERVICE OIL CO.

(Delaware)

Bartlesville, Okla.—Chicago, Ill.

•

Other Sales Offices

CLEVELAND KANSAS CITY

ST. PAUL TORONTO

Frank Fetherston Reassumes Secretaryship of LPGA

Frank R. Fetherston, secretary of the Liquefied Petroleum Gas Association for many years, has returned to his old duties after an absence of two and a half years. In January, 1943, he entered military service under a major's commission in the U. S. army, serving at Washington, D.C., in the Resources Division, Service of Supply.

F. R. FETHERSTON

Maj. Fetherston is now on the inactive roster but retains his commission until six months after the end of the war. During the years he was away, Miss Florence Jacob has been acting secretary of the association.

Helena, Ark., Residents Will Soon Use Propane

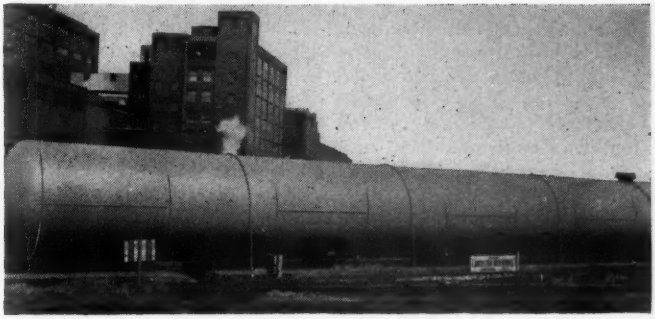
Helena, Ark., expects to be using propane gas by the first part of November by virtue of an authority granted the Arkansas General Utilities Co. by the Public Service Commission.

Propane will be substituted for the old manufactured gas served at present and the conversion will involve an expenditure of approximately $25,000 for equipment and an additional $3000 will be spent in altering household equipment.

The operating company expects to reduce the current rates, following conversion, to the present 600 customers and add about 250 new users.

Company officials stated that the change is necessary because steam formerly derived from the electri

LANCASTER points the way!

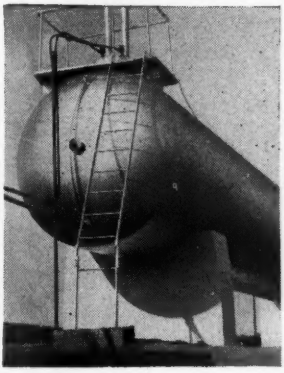


25,000 Gal. Propane Storage Tank
8' 4-13/16" O.D. x 76' 9-5/16" Long

FOR LPG STORAGE

Lancaster stands prepared to help you equip your plant with adequate and economical storage facilities to meet the post-war demand for liquefied petroleum gas. Lancaster offers you the results of years of experience in design, fabrication and erection of complete bulk plants. This highly specialized knowledge is yours for the asking. You will be the winner in properly designed, trouble-free, durable LP-Gas storage.

Complete proposal drawings and estimates will be submitted to you gladly and without obligation. Send your inquiries today for prompt attention.



15,000 Gal. Propane Storage Tank
8'0-1/16" I.D. x 50'5¼" Long

Bulk Tanks—Skid Tanks
Truck Tanks
for
Butane ★ Propane

LANCASTER IRON WORKS, INC.

Lancaster, Penna.

plant at Helena and utilized in manufacturing gas, will not be available when a new power line is built into the city.

H. Carl Wolf Elected AGA Managing Director

H. Carl Wolf, president of the Atlanta Gas Co., Atlanta, Ga., has been elected managing director of the American Gas Association, effective Oct. 1, and succeeding Maj. Alexander Forward. Maj. Forward has served as managing director since 1923 and is now retiring from business.

Mr. Wolf comes to the AGA at a time when there is under way a greatly expanded program of research, sales promotion and advertising for which the member companies have pledged more than $1,500,000 a year for the next three years.

LPGA Is Revising Constitution and By-Laws

The Liquefied Petroleum Gas Association under the leadership of President Ernest Fannin has been engaged recently in developing plans for constructive reorganization to meet the expanded needs of the industry.

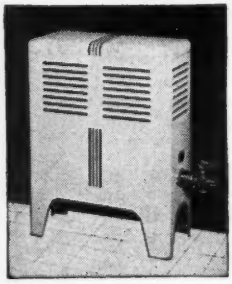
Mr. Fannin has released the following statement to members under date of Aug. 17:

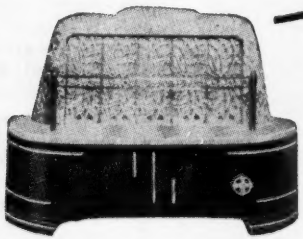
"It is my pleasure to report that the reorganization work within the Association is progressing nicely, to the point where it is contemplated that within the very near future the Executive Board will cause to be sent to the membership a revised constitution and by-laws for individual consideration.

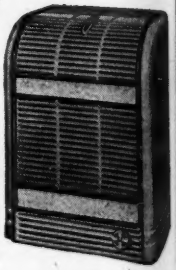
"The benefits to be gained under the reorganization plan will, I believe,

Armstrong

QUALITY SINCE 1899







No. 10-C Bathroom Heater—1-pc. body finished in white porcelain enamel. Cast iron burner, adjustable air mixers. 14½" high.

No. 690 Radiant Heater (center)—Finished in brown vitreous enamel. 17¾" high. 20,000 or 24,000 B.T.U.

Although our plant is devoted largely to war production, we still make some gas heaters. Deliveries to both old and new customers on a quota basis.

Armstrong Products Corp.

DEPT. BP HUNTINGTON, W. VIRGINIA

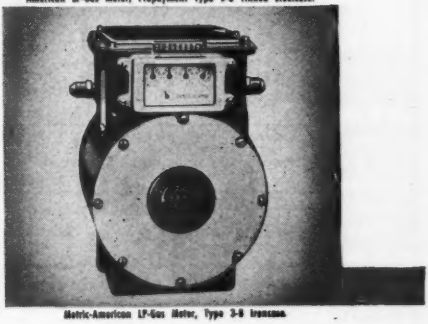
No. 900 Circulating-Radiant Heater—Designed for proper combustion to produce both radiant and circulating heat. Brown porcelain enamel finish. 19" high. 18,000 or 28,000 B.T.U.

Checked by the record of thousands in service

American LP-Gas Meter, Type 5-B Tinned Steelcase.

American LP-Gas Meter, Prepayment Type 5-B Tinned Steelcase.

American LP-Gas Meter, Type 2-B Tinned Steelcase.



Metric-American LP-Gas Meter, Type 3-B Ironcase.

THE preference of leading LP-Gas distributors for American Meter Company meters is fortified by substantial reasons . . .

A complete line of effective instruments for metering and controlling butane-propane vapors. American Meter Company experience and manufacturing responsibility give valid weight to its recommendations on the correct application of LP-Gas Meters and Regulators. For 105 years, the manufacturers have successfully anticipated the needs of the Gas industries.

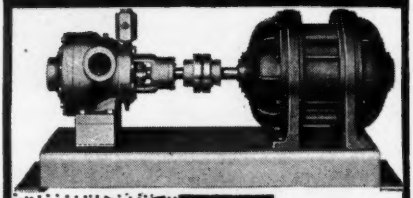
NEW CATALOG LPG-4 gives valuable data on LP-Gas metering with instruments scientifically suited to the purpose. If you have not received your copy, please write.

GENERAL OFFICES • 60 EAST 42ND STREET, NEW YORK, N. Y.

AMERICAN METER COMPANY

INCORPORATED (ESTABLISHED 1836)

SMITH
BUTANE-PROPANE
PUMPS



NEW MODEL M-1044 1800 rpm. For Electric Motor drive. Capacity 20 gpm

Larger capacity pumps available to meet every requirement for tank truck or direct connected electric drive.

MODEL M-2	For direct Electric Motor drive. Capacity 50 gpm at 1800 rpm.
MODEL M-3	For direct Electric Motor drive. Capacity 100 gpm at 1800 rpm.
MODEL 1044	For Truck Mounting Capacity 20 gpm Direct connected at 500 rpm.
MODEL T-2	For Truck Mounting Capacity 50 gpm Direct connected at 500 rpm.
MODEL T-3	For Truck Mounting Capacity 100 gpm Direct connected at 500 rpm.

WRITE FOR FULL INFORMATION

SMITH
Precision Products
COMPANY
1135 Mission Street
South Pasadena, Calif.

be readily apparent since it is expressly designed for the purpose of strengthening the Association activities, with increased value to the Industry and materially enlarging the scope of the membership."

Frier McCollister Leaves Selz For Manufacturing Firm

Frier McCollister, who has taken a leading role in publicity campaigns of the Liquefied Petroleum Gas Association, handled by the Lawrence H. Selz Organization, Chicago, has resigned to become merchandising manager for the Simmons Co., bedding manufacturers.

FRIER McCOLLISTER

Budd Mulloy, who has worked side-by-side with Mr. McCollister for the past year and a half, will now handle the LPGA account. Mr. Mulloy recently wrote an article explaining the B-P Gas industry's development and potential field for the "Scientific American" which had very wide circulation.

Buehler Tank Receives Production Award

The Buehler Tank and Welding Works, Los Angeles, was made the recipient of the Army-Navy Production Award for excellence in production at a ceremony held in the Vernon plant on Aug. 18.

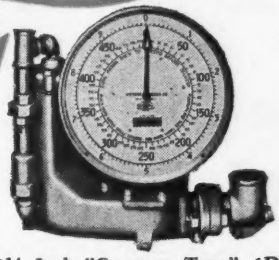
For four years the Buehler company has made the manufacture of tanks for the B-P Gas industry secondary to its production of units for the Navy and the award was announced almost simultaneously with the coming of peace.

SALES RECORDER
that measures your profits
Accurately!

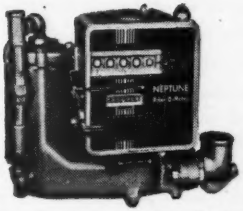
Here's a "cash register" for your bulk storage tanks, dispensing units, and tank trucks. It's the Neptune Red Seal LP-Gas Meter, the meter distinguished for unsurpassed accuracy and long life.

Put this profit protector to work for you and you always know exactly how much LP-Gas you've handled. Heart of the Red Seal Meter is the precision-built and carefully manufactured measuring chamber in which the piston is the *only* moving part. It assures metering accuracy that can't be beat—takes all the guesswork out of deliveries, saves time, effort and speeds handling.

Bulletin 779 tells all about Neptune Red Seal LP-Gas Meters and how they save money and contribute to better business. Write for your copy.



1¼ Inch "Compact Type" 1D Meter with high-visibility Round Dial Register.

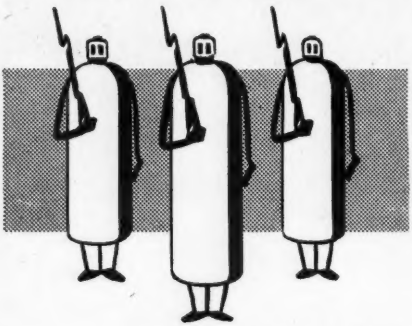


1¼ Inch "Compact Type" Meter with Print-O-Meter Register that prints an accurate receipt or invoice of each delivery.

NEPTUNE RED SEAL METERS

NEPTUNE METER COMPANY
50 West 50th St. • New York 20, N. Y.
Branches: **Atlanta, Boston, Chicago, Dallas, Denver, Kansas City, Mo., Los Angeles, Louisville, Philadelphia, Portland, Ore., San Francisco, and Long Branch, Ontario** A649

For PEP, PUNCH and POWER



Use SINCLAIR LP-GASES

Wartime performance of Sinclair's LP-Gases on battlefront or production line has proven their versatility for a greatly expanded domestic and industrial market in the future and postwar era.

Wartime necessities have also developed many new uses for Butane and Propane which will be found extremely helpful, economical and dependable on the farm, in the home, in the factory and on the highway as America returns to peacetime pursuits.

Discuss your plans with us.

SINCLAIR PRAIRIE OIL COMPANY

Liquefied Petroleum Gas Division

Sinclair Bldg. Tulsa, Oklahoma

"Who and What" Issued by The Bastian-Blessing Co.

"Who and What" is the name of a new publication issued by The Bastian-Blessing Co., Chicago, for the liquefied petroleum gas industry. It is attractively printed on coated paper and liberally filled with photographs of industry men and their plants. It will specifically serve as a medium of company announcements regarding its products sold to the trade.

E. L. MILLS

Col. Ellsworth L. Mills has a pertinent column of his own, under the caption of "The Colonel Says" and the eight pages are full of interesting items about men over the country who get their fun and their bread and butter by selling butane and propane and the equipment that goes with them.

Harold Laub, Three Years in War Work, Back on Job

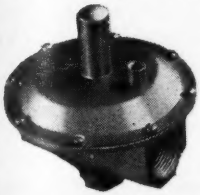
Lt. Col. H. G. Laub was released from active duty and returned to the Southern California Gas Co., Los Angeles, in July to re-assume his position as supervisor of distribution of suburban divisions.

Col. Laub, who was affiliated with the General Staff Corps at Cheyenne, Wyo., entered the Army as a captain in August, 1942.

NGAA Decides Upon Date Of 1946 Convention

Anticipating that restrictions on travel and hotel accommodations will undoubtedly be considerably reduced

3 BIG ADVANTAGES



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V-300 Low Pressure Gas Regulator

- HIGH CAPACITY
- CLOSE REGULATION
- NOMINAL COST

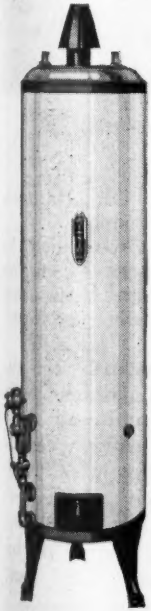
Answers every requirement for a small, compact, high-quality Gas Regulator. The V-300 Regulator is scientifically designed to resist corrosion from all types of fuel gases. It is precision-built to insure reliable, efficient, trouble-free operation.

For complete information on controls for the Gas Industry, write for Catalog 52B or contract nearest Factory Branch or Distribution

GENERAL CONTROLS

801 ALLEN AVENUE — GLENDALE 1, CALIF.

FACTORY BRANCHES: Philadelphia - Atlanta - Boston - Chicago - Dallas Kansas City - New York - Denver - Detroit - Cleveland - Pittsburgh Houston - Seattle - San Francisco - DISTRIBUTORS IN PRINCIPAL CITIES



"PRIDE OF OWNERSHIP"

This phrase is known to all; in simple words, it expresses that possessive something within us that joys in the good and useful things we own.

The Mission Plant is constantly on the alert to increase pride of ownership of a Mission Water Heater.

. . . 100% Safety Control Valves . . . LP-Gas Bunsen Type Burner . . . Thermostatically controlled temperature.

Deliveries will be made as fast as production permits.

"More hot water per minute at less cost."

MISSION WATER HEATER COMPANY

HEADQUARTERS: 7101 McKinley Ave., Los Angeles 1
BRANCHES: Oakland, 6601 Beck St.; San Francisco, 3369 Mission St.

New Blickman COFFEE URNS

for building your LP-Gas load

● Here are real load-builders — nationally known. Easing of restrictions now make them available for diners, lunchrooms, cafeterias, restaurants, schools, institutions, hotels and other commercial cooking establishments. Unprecedented demand may cause some delay but deliveries will be made as promptly as manufacture and materials permit. Write for further information. Catalogs available.

A wide selection of single urns, batteries, twin and combination urns available in capacities from 2 to 100 gallons. Obtainable in chrome or nickel-plated finish or our famous all-stainless steel construction.

S. BLICKMAN, INC.
Manufacturers of Food Service Equipment
2109 Gregory Ave. • WEEHAWKEN, N. J.

by the Spring of 1946, the board of directors of the Natural Gasoline Association of America has set April 17-19, 1946, as the dates for the annual convention. The 1945 meeting was cancelled because of war restrictions on travel.

Next year's sessions will be held, as usual, in the Baker hotel, Dallas, Texas.

Weed Nuisance Conquered By New Chemical Product

Relief from weeds and wild grasses that endanger bulk plants and consumer installations may now be had from a chemical called "Nox-Weed,"

Spraying weeds along highway

according to George E. Harman, manufacturer of the product.

"Nox-Weed" may be applied in either of two ways—sprayed on the leaves, stems and runners, or injected into their roots, depending upon the type.

In addition to fire hazards, the annual weeds and perennials cause much expense and annoyance in all rural areas, along highways, railway rights-of-way and even on city lots. "Nox-Weed" offers a valuable and interesting method to eliminate this condition. Full information can be had by writing to "Nox-Weed," 3257 East Slauson Ave., Los Angeles 11.

The New, Modern

ROYAL ROSE GAS RANGE

Beautifully streamlined, sturdy steel construction, all white porcelain finish. Designed for superior performance in tomorrow's kitchen.

Write for Details

J. ROSE & CO., INC.

68 Jay Street Brooklyn 1, N. Y.

LIQUID GAS EQUIPMENT CORP.

Distributors for:

NEPTUNE METERS

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SUPERIOR VALVES AND FITTINGS

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L & H GAS RANGES

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BRILLIANT FIRE SPACE HEATERS

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SUPERSEAL "GAS APPLIANCE CONNECTORS"

1355 Market Street

SAN FRANCISCO 3, CALIFORNIA

Soon!

DIX

Butane-Propane Carburetion

. . . will be available. Retooling is now under way and full scale production of the NEW Dix Butane-Propane Carburetion Unit will begin—SOON. We look forward to serving you.

Han probado ustedes BUTANE como combustible? En caso que no, escribanos.

DIX MANUFACTURING CO.

3447 E. Pico Blvd. Los Angeles 23, Calif.
Export Office—80 Broad St.,
New York City 4

KEEP TUNED TO BRILLIANT FIRE LP-GAS HEATERS IN 1945

Write for Latest Bulletin

THE OHIO FOUNDRY & MFG. CO.

STEUBENVILLE, OHIO

"Quality Heating Equipment Since 1846"

BRILLIANT FIRE

Brilliant Fire

GAS CIRCULATOR

NATURAL • MANUFACTURED • BUTANE • PROPANE

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Classified advertising is set in 6-point type, without border or display, at the rate of 10 cents per word per insertion; minimum charge per insertion $2. Box numbers for replies count as 5 words. Count as a word each one letter word and each group of figures. Classified advertising is only accepted when payment accompanies order. Copy and payment must reach publisher's office prior to 10th of month preceding publication.

SITUATIONS WANTED

VETERAN BEING HONORABLY DISCHARGED from Navy wants opportunity to introduce Butane to the unlimited "Butane-thirsty" field in North Africa. Write for my special qualifications. Louis J. Maranville, 6711 Sunset Blvd., Hollywood, California

HELP WANTED

L.P.G. SALES ENGINEER WANTED. MAJOR producer and marketer in the Liquefied Petroleum Gas industry requires the services of a sales engineer to be located in the Great Lakes Area. Engineering training desirable with knowledge of Liquefied Petroleum Gas Sales or Industrial fuel or equipment sales experience. Write Box 720, BUTANE-PROPANE *News*, 1709 W. 8th St., Los Angeles 14, California.

ENGINEER FAMILIAR WITH BUTANE AND Propane installation; capable of making plant surveys and flow-charts; supervise estimating, engineering and field erection. Salary commensurate with ability. Plant located in middle west. This is a real ground floor opportunity for the right man. Write giving complete personal data and experience. Write Box 740, BUTANE-PROPANE *News*, 1709 W. 8th St., Los Angeles 14, California.

EQUIPMENT WANTED

WANTED: PROPANE, BUTANE OR 7-70 cylinders any size; cylinder valves; regulators; bulk tanks; truck tanks; pumps and controls any size. Box 495, Syracuse, N.Y.

BUSINESS OPPORTUNITIES WANTED

JOBBER COVERING CALIFORNIA WITH established clientele of leading butane-propane dealers, desires distributorship of stoves, commercial ranges, space heaters, brooders, etc. (Will consider whole or part of state.) Write Box 730, BUTANE-PROPANE *News*, 1709 W. 8th Street, Los Angeles 14, California.

BUSINESS OPPORTUNITY OFFERED

WE HAVE A CAPACITY OF 1600 BUTANE-Propane tanks per month. Looking for outlet for entire production. Gaines Butane Equipment Co., Box 1749, Okmulgee, Oklahoma.

FOR SALE, BUTANE AIR GAS PLANT, Located in Southern section of Oregon, completely equipped, 15,000 gallon Butane Holder, Kemp proportioning machine, Sprague, American Meters. Priced to sell as is and operating. Box 332, Central Valley, California.

EQUIPMENT FOR SALE

FOR SALE: FOUR 12,000 and ONE 10,000 water Gallon Butane Bulk Storage, riveted and welded—Not A.S.M.E. approved but has been in service for several years—with fittings adjacent to tank. Delta Tank Manufacturing Company, Baton Rouge, La.

TWO PROPANE TANKS COMPLETE WITH all necessary valves and fittings. Year built 1943. W.C. 1844 gal. Write or phone R. E. Pearson Sales, Delphi, Ind.

ONE 300 GALLON, TWO 560 GALLON AND one 1100 gallon, 80 lb. pressure Hydro-Gas underground storage tanks. These tanks have been used, but they are in excellent condition. We would like to sell these tanks in one lot, prices to be F.O.B., Pendleton, Oregon. Write to E. L. Young, 903 S.E. Byers, Pendleton, Ore.

FREE TO WAR VETERANS

If you are a veteran of World War No. 2, you may run a "Situation Wanted" classified ad in this column three consecutive months without charge.

Send in your copy!

Rural Gas & Appliance Co. Buys Out Beaumont, Calif., Firm

Rural Gas and Appliance Co., Redlands, Calif., has bought out Hill J. Murray of Beaumont, Calif.

The combined businesses will be operated under the name Rural Gas and Appliance Co., with plants in both towns.

Owners of the company are R. C. Harris and Herbert Owens. Propane storage has been provided at both plants.

BUEHLER

Tank and Welding Works

•

Manufacturers of Tanks,
Welded and Pressed
Steel Products

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5000 Pacific Boulevard
LOS ANGELES 11, CALIFORNIA

For Safety
and Economy

ETHYL MERCAPTAN

—Purified—

The ACCEPTED
standard
odorant
for liquefied
petroleum
gases.

MALLINCKRODT CHEMICAL WORKS

ST. LOUIS NEW YORK

HOT WATER
As You Like It

ALL SIZES and PRICES
'The QUALITY LINE'

TURN ON
THE FAUCET

A. G. A. APPROVED

AMERICAN GAS ASSOCIATION — TESTED WITH NATIONAL SAFETY REQUIREMENTS — APPROVED

UNITED STATES HEATERS
will do the rest . . . !

COMPTON, CALIFORNIA

GEC
GAS EQUIPMENT COMPANY, INC.

GAS EQUIPMENT CO., INC.
2620 South Ervay Street, Dallas, Texas
GAS EQUIPMENT SUPPLY CO.

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